

IPW



CERTIFICATE OF FACSIMILE PURSUANT TO 37 C.F.R. §1.8

I hereby certify that this Request for Reconsideration of Petition Under 37 C.F.R. 1.182 is being deposited with the United States Postal Service as First Class Mail in an envelope addressed to: Mail Stop Petitions, Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450 on:

Date: November 24, 2004By: Luigi J. Mascari

**IN THE UNITED STATES PATENT AND  
TRADEMARK OFFICE**

**PATENT**

Applicant(s):	<b>Cheng-Chieh Chuang, et al.</b>	Docket No.:	<b>39524.6900</b>
Serial No.:	<b>10/603,901</b>	Group Art Unit:	<b>2655</b>
Filed:	<b>June 25, 2003</b>	Examiner:	<b>TBA</b>
TITLE:	<b>DISC APPARATUS WITH DEVICE FOR PREVENTING EJECTION OF A CRACKED DISC</b>		

**REQUEST FOR RECONSIDERATION OF PETITION UNDER 37 C.F.R. 1.182**

Mail Stop Petitions  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, Virginia 22313-1450

Dear Sir:

In response to the Decision of Petition mailed October 19, 2004 in the application, Applicants hereby submit the following Request for Reconsideration of Petition under 37 C.F.R. 1.182.

In the October 19, 2004 Decision, the Senior Petitions Attorney stated that this Request is proper if Applicants can submit evidence that Figure 4(b) was included in the application as filed on June 25, 2003. To that end, Applicants submit herewith the entire application as filed on June


25, 2003, including the returned postcard and the priority document, which includes Figure 4(b). As evidenced by the application as filed and the return postcard, Figure 4(b) was included with the application as filed on June 25, 2003.

Applicants therefore respectfully request favorable consideration of this Request, and a filing date of June 25, 2003. If however, the Petitions Attorney deems otherwise in the interest of expediting prosecution of this matter, Applicants request the filing date of June 25, 2003, with the deletion of Figure 4(b), which will be added during prosecution of this application, since it introduces no new matter.

Should the Petitions Attorney wish to discuss any of the above in greater detail, then the Petitions Attorney is invited to telephone the undersigned at the Attorney's convenience.

Respectfully submitted,

Date: 11/24/04

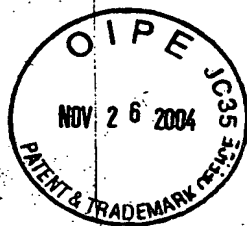
By   
Cynthia L. Pillote  
Reg. No. 42,999

**SNELL & WILMER** L.L.P.  
One Arizona Center  
400 East Van Buren  
Phoenix, AZ 85004-2202  
Phone: (602) 382-6296  
Fax: (602) 382-6070  
cpillote@swlaw.com



COPY

Snell & Wilmer LLP.  
One Arizona Center  
400 East Van Buren  
Phoenix, Arizona 85004-2202  
Attention: IP Department

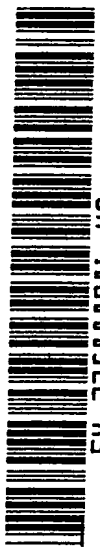


THE U.S. PATENT AND TRADEMARK OFFICE OFFICIAL MAIL  
ROOM STAMP AFFIXED HERETO ACKNOWLEDGES RECEIPT  
OF THE ITEMS CHECKED BELOW

Patent App. No.	To Be Assigned
Filing Date:	June 25, 2003
Priority Info:	Taiwan Pat. App. No. 091113858 Taiwan Filing Date 25 JUN 02
Inventor:	CHUANG, Cheng-Chieh CHIU, Hsien-Tsung HUANG, Chiu-An
Assignee:	BENQ CORPORATION
Title:	DISC APPARATUS WITH DEVICE FOR PREVENTING EJECTION OF A CRACKED DISC
<input checked="" type="checkbox"/> [ X ]	Utility Patent Application Transmittal (1 pg.)
<input checked="" type="checkbox"/> [ X ]	Fee Transmittal for FY 2003 (1 pg.) [plus duplicate copy]
<input checked="" type="checkbox"/> [ X ]	Specification, Claims, Abstract (13 pgs.) Total Claims: 20 Independent Claims: 4
<input checked="" type="checkbox"/> [ X ]	Drawings (formal) (7 pgs.)
<input checked="" type="checkbox"/> [ X ]	Declaration for Patent Application (English Language Declaration) (2 pgs.)
<input checked="" type="checkbox"/> [ X ]	Recordation Form Cover Sheet (1 pg.)
<input checked="" type="checkbox"/> [ X ]	Assignment (3 pgs.)
<input checked="" type="checkbox"/> [ X ]	Priority Document (Taiwan App. No. 091113858)
<input checked="" type="checkbox"/> [ X ]	Snell & Wilmer check number 561488 for \$874.00
<input checked="" type="checkbox"/> [ X ]	Authorization to charge any deficiency and credit any over- payment to Deposit Account No. 19-2814
<input checked="" type="checkbox"/> [ X ]	
<input checked="" type="checkbox"/> [ X ]	Marked Items filed on June 25, 2003 via: <input checked="" type="checkbox"/> [ X ] Express Mail No. EV325888086US First Class U.S. Mail

NOTED FOR REPLY

S&W Docket No.: 39524.6900 Atty.: PILLOTE / Clausen



EV 325888086 US



Mailing Label  
Label 11-F June 2002

EV325888086US



EV 325888086 US

**Customer Copy**  
Label 11-F June 2002

**EXPRESS MAIL**

UNITED STATES POSTAL SERVICE®

**Post Office To Addressee**

ORIGIN (POSTAL USE ONLY)				DELIVERY (POSTAL USE ONLY)			
PO ZIP Code	Day of Delivery	Flat Rate Envelope		Delivery Attempt	Time	Employee Signature	
85004	<input checked="" type="checkbox"/> Next <input type="checkbox"/> Second	<input type="checkbox"/> Postage		Mo. Day	<input type="checkbox"/> AM <input type="checkbox"/> PM		
Date In	<input checked="" type="checkbox"/> 12 Noon <input type="checkbox"/> 3 PM	Postage \$	17.85	Delivery Attempt	Time	Employee Signature	
Mo. Day Year	<input type="checkbox"/> Military	Return Receipt Fee		Mo. Day	<input type="checkbox"/> AM <input type="checkbox"/> PM		
Time In	<input type="checkbox"/> 2nd Day <input type="checkbox"/> 3rd Day	COD Fee		Delivery Date	Time	Employee Signature	
Mo. AM PM	<input type="checkbox"/> Int'l Alpha Country Code	Insurance Fee		Mo. Day	<input type="checkbox"/> AM <input type="checkbox"/> PM		
Weight	Accompanying Cls Initials	Total Postage Fee					
lbs. ozs.							
12.4	R.85	\$ 17.85					
<input type="checkbox"/> No Delivery	<input type="checkbox"/> Holiday						
<input type="checkbox"/> Weekend							
CUSTOMER USE ONLY				NO DELIVERY			
METHOD OF PAYMENT:				Customer Signature			
Express Mail Corporate Acct. No.				X852770			

<b>FROM: (PLEASE PRINT)</b> ATTORNEY: Cynthia J. Pallone - BAC FILE #39524-6900 DATE 25 JUN 03 SNELL & WILMER LLP 400 E VAN BUREN ST PHOENIX AZ 85004-2223	<b>TO: (PLEASE PRINT)</b> MAIL STOP PATENT APPLICATION COMMISSIONER FOR PATENTS PU BOX 1450 ALEXANDRIA VA 22313-1450
<b>PHONE</b> 602 382 6296	<b>PHONE</b>

PRESS HARD.  
You are making 3 copies. FOR PICKUP OR TRACKING CALL 1-800-222-1811 www.usps.com

Thank You

561488

SNELL & WILMER - PHOENIX, ARIZONA  
INVOICE NO. DATE DESCRIPTION INVOICE AMOUNT DISCOUNT NET AMOUNT

062003 06/20/03 MARY S 39524-0001(6900) 874.00 0.00 874.00

V: 1755 561488 874.00 0.00 874.00

CHECK NO. 561488

BANK ONE, ARIZONA, NA  
P.O. BOX 71, PHOENIX, ARIZONA 85001

WITH OFFICES IN:  
TUCSON, ARIZONA  
IRVINE, CALIFORNIA  
SALT LAKE CITY, UTAH

SNELL & WILMER  
LLP  
ONE ARIZONA CENTER  
PHOENIX, ARIZONA 85004-0001

91-2/1221

CHECK NO.

561488

DATE

VEND: 1755 06/23/2003

P A Y

Eight Hundred Seventy Four & 00/100 Dollars

\*\*\*\*\*874.00

PAY  
EXACTLY

VOID IF NOT PROCESSED IN 60 DAYS

COMMISSIONER OF PATENTS  
AND TRADEMARKS

TO THE  
ORDER  
OF

1005910

561488 122100024

**UTILITY  
PATENT APPLICATION  
TRANSMITTAL**

(Only for new nonprovisional applications under 37 CFR 1.53(b))

Attorney Docket No.

39524.6900

First Inventor

CHUANG, Cheng-Chieh

Title

Disc Apparatus with Device for Preventing ...

Express Mail Label No.

EV325888086US

**APPLICATION ELEMENTS**

See MPEP chapter 600 concerning utility patent application contents.

ADDRESS TO:

Commissioner for Patents  
Mail Stop Patent Application  
P. O. Box 1450  
Alexandria VA 22313-1450

1. ☒ Fee Transmittal Form (e.g., PTO/SB/17)  
(Submit an original, and a duplicate for fee processing)
2. ☐ Applicant claims small entity status.  
See 37 CFR 1.27.

3. ☒ Specification (Total Pages 13)  
(preferred arrangement set forth below)
- Descriptive title of the invention
  - Cross Reference to Related Applications
  - Statement Regarding Fed sponsored R & D
  - Reference to sequence listing, a table, or a computer program listing appendix
  - Background of the Invention
  - Brief Summary of the Invention
  - Brief Description of the Drawings (if filed)
  - Detailed Description
  - Claim(s)
  - Abstract of the Disclosure

4. ☒ Drawing(s) (35 U.S.C. 113) (Total Sheets 7)

5. Oath or Declaration (Total Pages 2)

- a. ☒ Newly executed (original or copy)
- b. ☐ Copy from a prior application (37 CFR 1.63(d))  
(for continuation/divisional with Box 18 completed)
- i. ☐ **DELETION OF INVENTOR(S)**  
Signed statement attached deleting inventor(s)  
named in the prior application, see 37 CFR  
1.63(d)(2) and 1.33(b).

6. ☐ Application Data Sheet. See 37 CFR 1.76

7. ☐ CD-ROM or CD-R in duplicate, large table of Computer Program (Appendix)
8. Nucleotide and/or Amino Acid Sequence Submission  
(if applicable, all necessary)
- a. ☐ Computer Readable Form (CRF)
- b. Specification Sequence Listing on:
- i. ☐ CD-ROM or CD-R (2 copies); or
  - ii. ☐ Paper
- c. ☐ Statements verifying identity of above copies

**ACCOMPANYING APPLICATION PARTS**

9. ☒ Assignment Papers (cover sheet & document(s))
10. ☐ 37 CFR 3.73(b) Statement (when there is an assignee) ☐ Power of Attorney
11. ☐ English Translation Document (if applicable)
12. ☐ Information Disclosure Statement (IDS)/PTO-1449 ☐ Copies of IDS Citations
13. ☐ Preliminary Amendment
14. ☒ Return Receipt Postcard (MPEP 503)  
(Should be specifically itemized)
15. ☒ Certified Copy of Priority Document(s)  
(if foreign priority is claimed)
16. ☐ Nonpublication Request under 35 U.S.C. 122  
(b)(2)(B)(i). Applicant must attach form PTO/SB/35  
or its equivalent.
17. ☐ Other:

18. If a CONTINUING APPLICATION, check appropriate box, and supply the requisite information below and in a preliminary amendment, or in an Application Data Sheet under 37 CFR 1.76:

☐ Continuation ☐ Divisional ☐ Continuation-in-part (CIP) of prior application No.: \_\_\_\_\_ / \_\_\_\_\_

Prior application information:

Examiner \_\_\_\_\_

Group / Art Unit: \_\_\_\_\_

For CONTINUATION OR DIVISIONAL APPS only: The entire disclosure of the prior application, from which an oath or declaration is supplied under Box 5b, is considered a part of the disclosure of the accompanying continuation or divisional application and is hereby incorporated by reference. The incorporation can only be relied upon when a portion has been inadvertently omitted from the submitted application parts.

**19. CORRESPONDENCE ADDRESS**☒ Customer Number or Bar Code Label

020322

or ☐ Correspondence address below

(Insert Customer No. or Attach bar code label here)

Name	Cynthia L. Pillote				
	Snell & Wilmer L.L.P.				
Address	One Arizona Center				
	400 East Van Buren				
City	Phoenix	State	Arizona	Zip Code	85004-2202
Country	US	Telephone	602-382-6296	Fax	602-382-6070

Name (Print/Type) Cynthia L. Pillote

Registration No. (Attorney/Agent)

42,999

Signature

[Signature]

Date

June 25, 2003

This collection of information is required by 37 CFR 1.53(b). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Mail Stop Patent Application, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

**FEE TRANSMITTAL  
for FY 2003**

Effective 01/01/2003. Patent fees are subject to annual revision.

☐ Applicant claims small entity status. See 37 CFR 1.27**TOTAL AMOUNT OF PAYMENT (\$)** \$874.00**Complete if Known**

Application Number	TBA
Filing Date	June 25, 2003
First Named Inventor	CHUANG, Cheng-Chieh
Examiner Name	TBA
Group Art Unit	TBA
Attorney Docket No.	39524.6900

**METHOD OF PAYMENT (check all that apply)**☒ Check ☐ Credit card ☐ Money Order ☐ Other ☐ None☒ Deposit Account:Deposit  
Account  
Number

19-2814

Deposit  
Account  
Name

Snell &amp; Wilmer

The Commissioner is authorized to: (check all that apply)

☐ Charge fee(s) indicated below ☒ Credit any overpayments☒ Charge any additional fee(s) during the pendency of this application☐ Charge fee(s) indicated below, except for the filing fee to the above-identified deposit account.**FEE CALCULATION****1. BASIC FILING FEE**

Large Entity		Small Entity		Fee Description	Fee Paid
Fee Code	Fee (\$)	Fee Code	Fee (\$)		
1001	750	2001	375	Utility filing fee	750.00
1002	330	2002	165	Design filing	
1003	520	2003	260	Plant filing fee	
1004	750	2004	375	Reissue filing	
1005	160	2005	80	Provisional filing fee	
SUBTOTAL (1)					(\$)

**2. EXTRA CLAIM FEES FOR UTILITY AND REISSUE**

				Fee from below		Fee Paid
Total Claims	20	-20** =	0	X	18.00	= 0.00
Independent Claims	4	-3** =	1	X	84.00	= 84.00
Multiple Dependent						

Large Entity		Small Entity		Fee Description
Fee Code	Fee (\$)	Fee Code	Fee (\$)	
1202	18	2202	9	Claims in excess of 20
1201	84	2201	42	Independent claims in excess of 3
1203	280	2203	140	Multiple dependent claim, if not paid
1204	84	2204	42	** Reissue independent claims over original patent
1205	18	2205	9	** Reissue claims in excess of 20 and over original patent

Large Entity		Small Entity		Fee Description	Fee Paid
Fee Code	Fee (\$)	Fee Code	Fee (\$)		
1202	18	2202	9	Claims in excess of 20	
1201	84	2201	42	Independent claims in excess of 3	
1203	280	2203	140	Multiple dependent claim, if not paid	
1204	84	2204	42	** Reissue independent claims over original patent	
1205	18	2205	9	** Reissue claims in excess of 20 and over original patent	
SUBTOTAL (2)					(\$)

\*\*or number previously paid, if greater; For Reissues, see above

**3. ADDITIONAL FEES**

Large Entity		Small Entity		Fee Description	Fee Paid
Fee Code	Fee (\$)	Fee Code	Fee (\$)		
1051	130	2051	65	Surcharge - late filing fee or oath	
1052	50	2052	25	Surcharge - late provisional filing fee or cover sheet	
1053	130	1053	130	Non - English specification	
1812	2,520	1812	2,520	For filing a request for <i>ex parte</i> reexamination	
1804	920*	1804	920*	Requesting publication of SIR prior to Examiner action	
1805	1,840*	1805	1,840*	Requesting publication of SIR after Examiner action	
1251	110	2251	55	Extension for reply within first month	
1252	410	2252	205	Extension for reply within second month	
1253	930	2253	465	Extension for reply within third month	
1254	1,450	2254	725	Extension for reply within fourth month	
1255	1,970	2255	985	Extension for reply within fifth month	
1401	320	2401	160	Notice of Appeal	
1402	320	2402	160	Filing a brief in support of an appeal	
1403	280	2403	140	Request for oral hearing	
1451	1,510	1451	1,510	Petition to institute a public use proceeding	
1452	110	2452	55	Petition to revive - unavoidable	
1453	1,300	2453	650	Petition to revive - unintentional	
1501	1,300	2501	650	Utility issue fee (or reissue)	
1502	470	2502	235	Design issue fee	
1503	630	2503	315	Plant issue fee	
1460	130	1460	130	Petitions to the Commissioner	
1807	50	1807	50	Processing fee under 37 CFR § 1.17(q)	
1806	180	1806	180	Submission of Information Disclosure Statement	
8021	40	8021	40	Recording each patent assignment per property (times number of properties)	40.00
1809	750	2809	375	Filing a submission after final rejection (37 CFR § 1.129(a))	
1810	750	2810	375	For each additional invention to be examined (37 CFR § 1.129(b))	
1801	750	2801	375	Request for Continued Examination (RCE)	
1802	900	1802	900	Request for expedited examination of a design application	

Other fee (specify) \_\_\_\_\_

\*Reduced by Basic Filing Fee Paid

SUBTOTAL (3) (\$)

**SUBMITTED BY**

Name (Print/Type)	Cynthia L. Pillote	Registration No. (Attorney/Agent)	42,999	Telephone	602-382-6296
Signature	[Signature]			Date	June 25, 2003

**WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.**

This collection of information is required by 37 CFR 1.17 and 1.27. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

# FEE TRANSMITTAL for FY 2003

Effective 01/01/2003. Patent fees are subject to annual revision.

☐ Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT (\$) \$874.00

## Complete if Known

Application Number TBA  
 Filing Date June 25, 2003  
 First Named Inventor CHUANG, Cheng-Chieh  
 Examiner Name TBA  
 Group Art Unit TBA  
 Attorney Docket No. 39524-690

## METHOD OF PAYMENT (check all that apply)

☒ Check ☐ Credit card ☐ Money Order ☐ Other ☐ None

☒ Deposit Account:

Deposit Account Number

19-2814

Deposit Account Name

Snell & Wilmer

The Commissioner is authorized to: (check all that apply)

☐ Charge fee(s) indicated below ☒ Credit any overpayments

☒ Charge any additional fee(s) during the pendency of this application

☐ Charge fee(s) indicated below, except for the filing fee to the above-identified deposit account.

## FEE CALCULATION

### 1. BASIC FILING FEE

Large Entity	Small Entity	Fee Code	Fee (\$)	Fee Description	Fee Paid
1001	2001	750	375	Utility filing fee	750.00
1002	2002	330	165	Design filing	
1003	2003	520	260	Plant filing fee	
1004	2004	750	375	Reissue filing	
1005	2005	160	80	Provisional filing fee	
SUBTOTAL (1)					(\$ 750.00)

### 2. EXTRA CLAIM FEES FOR UTILITY AND REISSUE

Total Claims	Extra Claims	Fee from below	Fee Paid
20	-20** = 0	X 18.00 =	0.00
Independent Claims	4	-3** = 1	X 84.00 = 84.00
Multiple Dependent			

Large Entity	Small Entity	Fee Code	Fee (\$)	Fee Description	Fee Paid
1202	2202	18	9	Claims in excess of 20	
1201	2201	84	42	Independent claims in excess of 3	
1203	2203	280	140	Multiple dependent claim, if not paid	
1204	2204	84	42	** Reissue independent claims over original patent	
1205	2205	18	9	** Reissue claims in excess of 20 and over original patent	

SUBTOTAL (2) (\$) 84.00

\*\*or number previously paid, if greater; For Reissues, see above

## FEE CALCULATION (continued)

### 3. ADDITIONAL FEES

Large Entity	Small Entity	Fee Code	Fee (\$)	Fee Description	Fee Paid
1051	2051	130	65	Surcharge - late filing fee or oath	
1052	2052	50	25	Surcharge - late provisional filing fee or cover sheet	
1053	1053	130	130	Non - English specification	
1812	1812	2,520	2,520	For filing a request for ex parte reexamination	
1804	1804	920*	920*	Requesting publication of SIR prior to Examiner action	
1805	1805	1,840*	1,840*	Requesting publication of SIR after Examiner action	
1251	2251	110	55	Extension for reply within first month	
1252	2252	410	205	Extension for reply within second month	
1253	2253	930	465	Extension for reply within third month	
1254	2254	1,450	725	Extension for reply within fourth month	
1255	2255	1,970	985	Extension for reply within fifth month	
1401	2401	320	160	Notice of Appeal	
1402	2402	320	160	Filing a brief in support of an appeal	
1403	2403	280	140	Request for oral hearing	
1451	1451	1,510	1,510	Petition to institute a public use proceeding	
1452	2452	110	55	Petition to revive - unavoidable	
1453	2453	1,300	650	Petition to revive - unintentional	
1501	2501	1,300	650	Utility issue fee (or reissue)	
1502	2502	470	235	Design issue fee	
1503	2503	630	315	Plant issue fee	
1460	1460	130	130	Petitions to the Commissioner	
1807	1807	50	50	Processing fee under 37 CFR § 1.17(q)	
1806	1806	180	180	Submission of Information Disclosure Statement	
8021	8021	40	40	Recording each patent assignment per property (times number of properties)	40.00
1809	2809	750	375	Filing a submission after final rejection (37 CFR § 1.129(a))	
1810	2810	750	375	For each additional invention to be examined (37 CFR § 1.129(b))	
1801	2801	750	375	Request for Continued Examination (RCE)	
1802	1802	900	900	Request for expedited examination of a design application	

Other fee (specify) \_\_\_\_\_

\*Reduced by Basic Filing Fee Paid

SUBTOTAL (3) (\$) 40.00

## SUBMITTED BY

Name (Print/Type) Cynthia L. Pillote

Signature

*Cynthia L. Pillote, reg # 41,655, for Cynthia Pillote*

Registration No. (Attorney/Agent)

42,999

## Complete (if applicable)

Telephone

602-382-6296

Date

June 25, 2003

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

This collection of information is required by 37 CFR 1.17 and 1.27. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.



## PATENTS ONLY

Tab settings → → → ▼ ▼ ▼ ▼ ▼ ▼ ▼

To the Honorable Director of the United States Patent and Trademark Office: Please record the attached original documents or copy thereof.

## 1. Name of conveying party(ies):

CHUANG, Cheng-Chieh  
CHIU, Hsien-Tsung  
HUANG, Chiu-AnAdditional names(s) of conveying party(ies) attached? ☐ Yes ☒ No

## 3. Nature of conveyance:

- ☒ Assignment ☐ Merger
- ☐ Security Agreement ☐ Change of Name
- ☐ Other \_\_\_\_\_

Execution Date: June 20, 2003

## 2. Name and address of receiving party(ies):

Name: BENQ CORPORATIONAddress: No. 157, Shan-Ying Rd.City: Kweishan State/Prov.: TaoyuanCountry: Taiwan ZIP: \_\_\_\_\_Additional name(s) & address(es) attached? ☐ Yes ☒ No

## 4. Application number(s) or patent numbers(s):

If this document is being filed together with a new application, the execution date of the application is: June 25, 2003

Patent Application No. \_\_\_\_\_ Filing date \_\_\_\_\_

B. Patent No.(s) \_\_\_\_\_

Additional numbers attached? ☐ Yes ☒ No

## 5. Name and address of party to whom correspondence concerning document should be mailed:

Name: Cynthia L. PilloteRegistration No. 42,999Address: Snell & Wilmer L.L.P.One Arizona Center400 East Van BurenCity: Phoenix State/Prov.: ArizonaCountry: US ZIP: 85004-2202

## 6. Total number of applications and patents involved:

17. Total fee (37 CFR 3.41):.....\$ 40.00☒ Enclosed - Any excess or insufficiency should be credited or debited to deposit account☐ Authorized to be charged to deposit account

## 8. Deposit account number:

19-2814

(Attach duplicate copy of this page if paying by deposit account)

DO NOT USE THIS SPACE

## 9. Statement and signature.

To the best of my knowledge and belief, the foregoing information is true and correct and any attached copy is a true copy of the original document.

Cynthia L. Pillote

Name of Person Signing

David S. Cepha, Reg. #41,655

Signature

June 25, 2003

Date

4

Total number of pages including cover sheet, attachments, and document

COPY

## ASSIGNMENT

WHEREAS, the undersigned inventors (hereinafter singly and collectively, "ASSIGNOR") of the addresses indicated below, have invented

DISC APPARATUS WITH DEVICE FOR PREVENTING EJECTION OF A  
CRACKED DISC

for which application for Letters Patent of the United States [is being filed concurrently herewith]  
[was filed as U.S. Serial No. \_\_\_\_\_ on \_\_\_\_\_];

AND WHEREAS, \_\_\_\_\_ BenQ Corporation \_\_\_\_\_ (hereinafter "ASSIGNEE"), a \_\_\_\_\_ Taiwan \_\_\_\_\_ corporation having its principal place of business at \_\_\_\_\_ No. 157, Shan-Ying Rd., Kweishan, Taoyuan, Taiwan \_\_\_\_\_ is desirous of acquiring an interest therein;

NOW, THEREFORE, for good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, ASSIGNOR by these presents does sell, assign and transfer unto ASSIGNEE, its successors, assigns and legal representatives, the full and exclusive right to the invention as described in the aforesaid application, in the United States and all foreign countries, together with the right of priority under the International Convention for the Protection of Industrial Property, Inter-American Convention Relating to Patents, Designs and Industrial Models, and any other international agreements to which the United States adheres, and hereby authorizes and requests the Commissioner of Patents to issue said Letters Patent to ASSIGNEE, for the sole use and benefit of ASSIGNEE, its successors, assigns and legal representatives,

AND HEREBY AGREES to transfer a like interest upon request of ASSIGNEE, its successors, assigns and legal representatives, and without further remuneration, in and to any improvements and applications for patents based thereon, growing out of or relating to the invention; and to provide all reasonable assistance and execute any papers deemed essential by ASSIGNEE, its successors, assigns and legal representatives, to ASSIGNEE's full protection and title in and to the invention hereby transferred,

AGREEING, FURTHERMORE, upon request of ASSIGNEE, and without further remuneration, to execute any and all papers desired by ASSIGNEE for the filing and granting of foreign applications and the perfecting of title thereto in ASSIGNEE.

EXECUTED as of the date(s) written below by ASSIGNOR:

I hereby claim the benefit under Title 35 U.S.C. Section 119(e) of any United States provisional application(s) listed below.

_____	_____
(Application Serial No.)	(Filing Date)
_____	_____
(Application Serial No.)	(Filing Date)
_____	_____
(Application Serial No.)	(Filing Date)

I hereby claim the benefit under Title 35 U.S.C. Section 120 of any United States application(s), or Section 365(c) of any PCT International application designating the United States, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International application in the manner provided by the first paragraph of 35 U.S.C. Section 112, I acknowledge the duty to disclose to the United States Patent and Trademark Office all information known to me to be material to patentability as defined in Title 37, C. F. R., Section 1.56 which became available between the filing date of the prior application and the national or PCT International filing date of this application:

_____	_____	_____
(Application Serial No.)	(Filing Date)	(Status)
		(patented, pending, abandoned)
_____	_____	_____
(Application Serial No.)	(Filing Date)	(Status)
		(patented, pending, abandoned)
_____	_____	_____
(Application Serial No.)	(Filing Date)	(Status)
		(patented, pending, abandoned)

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Full name of sole or first inventor	CHUANG, Cheng-Chieh	
Sole or first inventor's signature	<i>Chuang, Cheng-Chieh</i>	Date <i>6/20/03</i>
Residence	3F., No. 15, Alley 18, Lane 61, Minsheng St., Sanchong City, Taipei County, Taiwan	
Citizenship	Taiwan	
Post office address	c/o BenQ Corporation, No. 157, Shan-Ying Rd., Kweishan, Taoyuan, Taiwan	

Full name of second inventor	CHIU, Hsien-Tsung	
Sole or first inventor's signature	<i>Chiu, Hsien-Tsung</i>	Date <i>6/20/03</i>
Residence	No. 9, Lane 696, Zihciang S. Rd., Gueishan Township, Taoyuan County, Taiwan	
Citizenship	Taiwan	
Post office address	c/o BenQ Corporation, No. 157, Shan-Ying Rd., Kweishan, Taoyuan, Taiwan	

Full name of third inventor	HUANG, Chiu-An	
Sole or first inventor's signature	<i>Huang, Chiu-An</i>	Date <i>6/20/03</i>
Residence	No. 18-1, Longyan Village, Baojhong Township, Yunlin County, Taiwan	
Citizenship	Taiwan	
Post office address	c/o BenQ Corporation, No. 157, Shan-Ying Rd., Kweishan, Taoyuan, Taiwan	

## Declaration For Patent Application English Language Declaration

COPY

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled

DISC APPARATUS WITH DEVICE FOR PREVENTING EJECTION OF A  
CRACKED DISC

the specification of which

(check one)

☒ is attached hereto.

☐ was filed on \_\_\_\_\_ as United States Application No. or PCT International  
Application Number \_\_\_\_\_  
and was amended on \_\_\_\_\_  
(if applicable)

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose to the United States Patent and Trademark Office all information known to me to be material to patentability as defined in Title 37, Code of Federal Regulations, Section 1.56.

I hereby claim foreign priority benefits under Title 35, United States Code, Section 119 (a-d) or Section 365(b) of any foreign application(s) for patent or inventor's certificate, or Section 365(a) of any PCT international application which designated at least one country other than the United States, listed below and have also identified below, by checking the box, any foreign application for patent or inventor's certificate or PCT international application having a filing date before that of the application on which priority is claimed:

Prior Foreign Application(s)			Priority Claimed	
(Number)	(Month/Day/Year Filed)	(Country)	Yes	No
091113858	6 / 25 / 2002	Taiwan	v	

<u>INVENTOR'S NAME</u>	<u>ADDRESS</u>	<u>SIGNATURE</u>
CHUANG, Cheng-Chieh	3F., No. 15, Alley 18, Lane 61, Minsheng St., Sanchong City, Taipei County, Taiwan	<i>Chuang, Cheng-Chieh</i>

Date 6/20/03

<u>INVENTOR'S NAME</u>	<u>ADDRESS</u>	<u>SIGNATURE</u>
CHIU, Hsien-Tsung	No. 9, Lane 696, Zihciang S. Rd., Gueishan Township, Taoyuan County, Taiwan	<i>Chiu, Hsien Tsung</i>

Date 6/20/03

<u>INVENTOR'S NAME</u>	<u>ADDRESS</u>	<u>SIGNATURE</u>
HUANG, Chiu-An	No. 18-1, Longyan Village, Baojhong Township, Yunlin County, Taiwan	<i>Huang, Chiu-An</i>

Date 6/20/03

**Title:** DISC APPARATUS WITH DEVICE FOR PREVENTING EJECTION OF A CRACKED DISC

**Inventors:** Cheng-Chieh CHUANG, Hsien-Tsung CHIU, and Chiu-An HUANG

COPY

[0001] This application claims priority of Taiwan Patent Application No. 091113858 filed on June 25, 2002.

**Field of Invention**

[0002] The present invention relates to an apparatus for preventing a cracked disc from flying out of a disc data reading apparatus and a disc data reading device including the apparatus.

**Background of the Invention**

[0003] In past few years, the rotation speed of disc data reading apparatuses has rapidly increased. However, because of the unstable qualities of re-writable discs and increased rotation speed, the discs are easier to crack during rotation. In addition, accidents caused by ejected cracked discs have also rapidly increased. Hence how to prevent the cracked discs flying out of the disc data reading apparatuses is important when designing the structure of the disc data reading apparatuses.

[0004] Generally, the ejected cracked discs pass through a chink between the tray and the housing and damage the panel and cover. Conventionally, the front edge of the housing is bent downward to block the cracked discs. However, the energy generated while the discs crack usually presses the tray down, and then the cracked discs are able to pass from the underside of the front edge of the housing.

[0005] To solve this problem, some support points are disposed under the tray. While the energy forces the tray downward, the support points touch the chassis and receive a reaction force for limiting the downward displacement of the tray.

[0006] However, besides the tray, the energy also forces the housing upward. Therefore the problem of ejected cracked discs still exists.

### **Summary of the Invention**

[0007] It is an aspect of the present invention to provide an apparatus for use with a disc data reading apparatus and preventing a cracked disc from flying out of the apparatus.

[0008] It is another aspect of the present invention to limit the displacement of the housing while the disc cracks.

[0009] It is another aspect of the present invention to limit the displacement of the tray while the disc cracks.

[0010] The present invention provides an apparatus for use with a disc data reading apparatus. In the first embodiment, the apparatus of the present invention includes a housing and a panel. The panel selectively connects with the housing. The housing has a protrusion, which connects with a front edge of the housing. The panel has a first surface corresponding to the protrusion. While the disc within the disc data reading apparatus cracks, a force existing between the protrusion and the first surface limits relative displacement of the panel and the housing for preventing a cracked disc flying out.

[0011] In addition, the housing includes a stopper for blocking the cracked disc. The stopper extends downward from the front edge of the housing.

[0012] The present invention further includes a tray and a chassis. The tray includes at least one support point. As the disc becomes cracked, the support point touches against the



chassis and receives a reaction force limiting relative displacement between the tray and the chassis.

[0013] In the second embodiment, differing from the first embodiment, an inner side edge of the panel connects the protrusion, and the housing has the first surface corresponding to the protrusion.

[0014] The present invention further provides a disc data reading apparatus using the apparatus mentioned above.

[0015] This and other aspects of the present invention will become clear to those of ordinary skills in the art after having read the following detailed description of the preferred embodiments illustrated in the various figures and drawings.

#### **Brief Description of the Drawings**

[0016] Fig. 1 shows a perspective view of the disc data reading apparatus;

[0017] Fig. 2a shows a front view of the first embodiment of the present invention;

[0018] Fig. 2b shows a cross-section profile of the embodiment of Fig. 2a taken along line I-I';

[0019] Fig. 2c shows a magnification view of a portion of the profile illustrated in Fig. 2b;

[0020] Fig. 3 shows the housing in accordance with a first embodiment;

[0021] Fig. 4a shows a bottom view of the tray;

[0022] Fig. 4b shows a perspective view of the chassis;

[0023] Fig. 5a shows a side view of the first embodiment;

[0024] Fig. 5b shows a profile taken along line II-II' of Fig. 5a; and

[0025] Fig. 6 shows a second embodiment of the present invention.

**Detailed Description**

[0026] The present invention provides an apparatus for use with a disc data reading apparatus 100 shown in Fig. 1. The apparatus of the present invention prevents a cracked disc from flying out when a disc within the disc data reading apparatus 100 cracks. The disc data reading apparatus 100 mentioned here may include a CD-ROM, a CD-R, a CD-RW, a DVD player, or other resemblances. The following description discloses several preferred embodiments of the present invention.

[0027] **First embodiment**

[0028] The description hereafter refers to Fig. 2a, Fig. 2b, and Fig. 2c. The apparatus of the present invention includes a housing 200 and a panel 300. The housing 200 has a protrusion 400, which connects with a front edge 220 of the housing 200. The protrusion 400 may have a slab shape, a spherical shape, a half-spherical shape, or other resemblances. In the embodiment illustrated in Fig. 2c, the protrusion 400 extends downward from the front edge 220 for a first interval 420, and then turns toward the panel 300. In other words, the protrusion 400 has an L-shaped profile. However, in other embodiments, the protrusion 400 has an L-shaped profile. However, in other embodiments, the protrusion 400 may extend from the edge 220 and directly toward the panel 300. In addition, the protrusion 400 horizontally extend toward the panel 300; however, in other embodiments, the protrusion 400 may extend along an inclination.

[0029] The panel 300 selectively connects with the front edge 220 of the housing 200. In this embodiment, the panel 300 is removably connected with the front edge 220. The panel 300 includes a first surface 520 corresponding to the protrusion 400. Particularly, the first surface 520 corresponds to and contacts a side of the protrusion 400 when the housing 200 connects the panel 300. When a disc within the disc data reading apparatus 100 cracks, the concurrently generated energy forces the housing 200 and a tray 600 oppositely move or deform. The stopper 240 blocks most of the cracked pieces, and the other pieces fly toward

the panel 300 through a chink 440 formed by the stopper 240 and the tray 600. Those escaped pieces then force the panel 300 to move upward and the cover 800 to move downward so as to broaden the seam between the panel 300 and the cover 800. When the panel 300 and the cover 800 oppositely move, the first surface 520 contacts with the protrusion 400. The contact generates a force to limit relative displacement between the panel 300 and the cover 800 for preventing the cracked pieces flying out. In addition, an extension 522 of the first surface 520 overlaps the cover 800 with a specific interval X, and a chink 803, which is smaller than X, is between the cover 800 and the panel 300. While the cover 800 moves downward and contacts with the panel 300 to eliminate the chink 803, the extension 522 still overlaps the cover 800 to block the cracked pieces.

[0030] As Fig. 2c shows, the panel 300 further has a depression 500. In this embodiment, the depression 500 is a slot, which is parallel with the surface of the disc. The first surface 520 is a sidewall of the depression 500. When the housing 200 connects with the panel 300, the depression 500 receives the protrusion 400, and the sidewall of the depression 500, i.e. the first surface 520, corresponds to a side of the protrusion 400.

[0031] As Fig. 3 shows, the stopper 240 connects with the front edge 220 of the housing 200 and extends downward. The stopper 240 mentioned above may include a plate structure, a net structure, or other similar structures. In this embodiment, the stopper 240 is a plate structure and aligned with the protrusion 400 alternately.

[0032] As Fig. 4a, Fig. 4b, Fig. 5a and Fig. 5b show, the present invention further includes a tray 600 for holding the disc and a chassis 700 for supporting the tray 600. The tray 600 has at least one support point 620. The support point 620 mentioned above may include various kinds of appearances, such as sphere, half-sphere, cross, or other resemblances. As the disc becomes cracked, the support point 620 touches against the chassis 700 and receives a reaction force limiting relative displacement between the tray 600 and the chassis 700. In

other embodiments, however, the support point 620 may be arranged on the chassis 700 and touch against the tray 600. Moreover, the support points 620 may be arranged both on the tray 600 and the chassis 700 and contact with each other to provide a reaction.

**[0033] Second Embodiment**

**[0034]** As Fig. 6 shows, the difference between the first and the second embodiments is that the panel 300 has a protrusion 400 and the housing 200 has the first surface 540 corresponding to the protrusion 400. The protrusion 400 extends from a side edge 320 of the panel 300. The protrusion 400 may have a slab shape, a spherical shape, a half-spherical shape, or other resemblances. As Fig. 6 shows, the protrusion 400 extends from the side edge 320 and toward the housing 200. In addition, the protrusion 400 horizontally extend toward the panel 300, however, in another embodiments, the protrusion 400 may extend along an inclination.

**[0035]** The housing 200 selectively connects with the side edge 320 of the panel 300. In this embodiment, the housing 200 is removably connected with the side edge 320. The first surface 540 corresponds to and contact with a side surface of the protrusion 400 when the housing 200 connects with the panel 300. When a disc within the disc data reading apparatus 100 cracks, the concurrently generated energy forces the housing 200 and a tray 600 respectively move or deform in opposite directions. In the meantime, the first surface 540 contacts with the protrusion 400. The contact generates a force to limit relative displacement between the panel 300 and the housing 200 for preventing the cracked pieces from flying out.

**[0036]** As Fig. 6 shows, the housing 200 further has a depression 500. In this embodiment, the depression 500 is a slot, which is parallel with the surface of the disc. The first surface 540 is a sidewall of the depression 500. When the housing 200 connects with

the panel 300, the depression 500 receives the protrusion 400, and the sidewall of the depression 500, i.e. the first surface 540, corresponds to a side surface of the protrusion 400.

[0037] Those skilled in the art will readily observe that numerous modifications and alterations of the device may be made within the teaching of the invention. Accordingly, the above disclosure should be construed as limited only by the metes and bounds of the appended claims.

**Claims**

1. An apparatus for use with a disc data reading apparatus, comprising:  
a housing having a front edge and a protrusion connected to the front edge; and  
a panel, the panel being selectively connected to the front edge, the panel having a  
first surface corresponding to the protrusion;  
wherein, a force existing between the protrusion and the first surface limits relative  
displacement between the panel and the housing for preventing a cracked disc  
flying out of the disc data reading apparatus.
2. The apparatus of claim 1, wherein the panel further comprises a depression, the first  
surface being a side-wall of the depression, as the housing is connected to the panel,  
the protrusion is received within the depression.
3. The apparatus of claim 1, wherein the housing further comprises a stopper, connected  
to the front edge and extending downward from the front edge, for blocking the  
cracked disc.
4. The apparatus of claim 1, further comprising a tray and a chassis, the tray including a  
support point, as the disc becomes cracked, the support point touches against the  
chassis and receives a reaction force limiting relative displacement between the tray  
and the chassis.
5. The apparatus of claim 1, further comprising a tray and a chassis, the chassis  
including a support point, as the disc becomes cracked, the support point touches

against the tray and receives a reaction force limiting relative displacement between the tray and the chassis.

6. An apparatus for use with a disc data reading apparatus, comprising:  
a panel having a side edge and a protrusion connected to the side edge; and  
a housing, the housing being selectively connected to the side edge, the housing  
having a first surface corresponding to the protrusion;  
wherein, a force existing between the protrusion and the first surface limits relative  
displacement between the panel and the housing for preventing a cracked disc  
from flying out of the disc data reading apparatus.
7. The apparatus of claim 6, wherein the housing further comprises a depression, the  
first surface being a side-wall of the depression, as the housing is connected to the  
panel, the protrusion is received within the depression.
8. The apparatus of claim 6, wherein the housing further comprises a stopper, connected  
to the front edge and extending downward from the front edge, for blocking the  
cracked disc.
9. The apparatus of claim 6, further comprising a tray and a chassis, the tray including a  
support point, as the disc becomes cracked, the support point touches against the  
chassis and receives a reaction force limiting relative displacement between the tray  
and the chassis.

10. The apparatus of claim 6, further comprising a tray and a chassis, the chassis including a support point, as the disc becomes cracked, the support point touches against the tray and receives a reaction force limiting relative displacement between the tray and the chassis.
11. A disc data reading apparatus comprising:  
a housing having an opening, the opening defining a front edge and the front edge extending to form a protrusion; and  
a panel, the panel being selectively connected to the front edge, the panel including a first surface corresponding to the protrusion;  
wherein, a force existing between the protrusion and the first surface limits relative displacement between the panel and the front edge for preventing a cracked disc flying out of the disc data reading apparatus.
12. The disc data reading apparatus of claim 11, wherein the panel further comprises a depression, the first surface being a side-wall of the depression, as the front edge is connected to the panel, the protrusion is received within the depression.
13. The disc data reading apparatus of claim 11, wherein the housing further comprises a stopper, connected to the front edge and extending downward from the front edge, for blocking the cracked disc.
14. The disc data reading apparatus of claim 11 further comprising a tray and a chassis, the tray including a support point, as the disc becomes cracked, the support point



touches against the chassis and receives a reaction force limiting relative displacement between the tray and the chassis.

15. The disc data reading apparatus of claim 11, further comprising a tray and a chassis, the chassis including a support point, as the disc becomes cracked, the support point touches against the tray and receives a reaction force limiting relative displacement between the tray and the chassis.
16. A disc data reading apparatus comprising:  
a panel having a side edge provided with a protrusion; and  
a housing having an opening, the opening defining a front edge selectively attaching to the side edge, the front edge being provided with a first surface corresponding to the protrusion;  
wherein, a force existing between the protrusion and the first surface limits relative displacement between the panel and the housing for preventing a cracked disc from flying out of the disc data reading apparatus.
17. The disc data reading apparatus of claim 16, wherein the housing further comprises a depression, the first surface being a side-wall of the depression, as the housing is connected to the panel, the protrusion is received within the depression.
18. The disc data reading apparatus of claim 16, wherein the housing further comprises a stopper, connected to the front edge and extending downward from the front edge, for blocking the cracked disc.

19. The disc data reading apparatus of claim 16 further comprising a tray and a chassis, the tray including a support point, as the disc becomes cracked, the support point touches against the chassis and receives a reaction force limiting relative displacement between the tray and the chassis.
20. The disc data reading apparatus of claim 16, further comprising a tray and a chassis, the chassis including a support point, as the disc becomes cracked, the support point touches against the tray and receives a reaction force limiting relative displacement between the tray and the chassis.

**Abstract**

[0038] An apparatus for preventing a cracked disc from flying out of a disc data reading apparatus is provided. The apparatus includes a housing and a panel. The panel selectively connects with the housing. The housing has a protrusion connecting with a front edge of the housing. The panel has a first surface corresponding to the protrusion. While the disc within the disc data reading apparatus cracks, a force existing between the protrusion and the first surface prevents a cracked disc flying out.

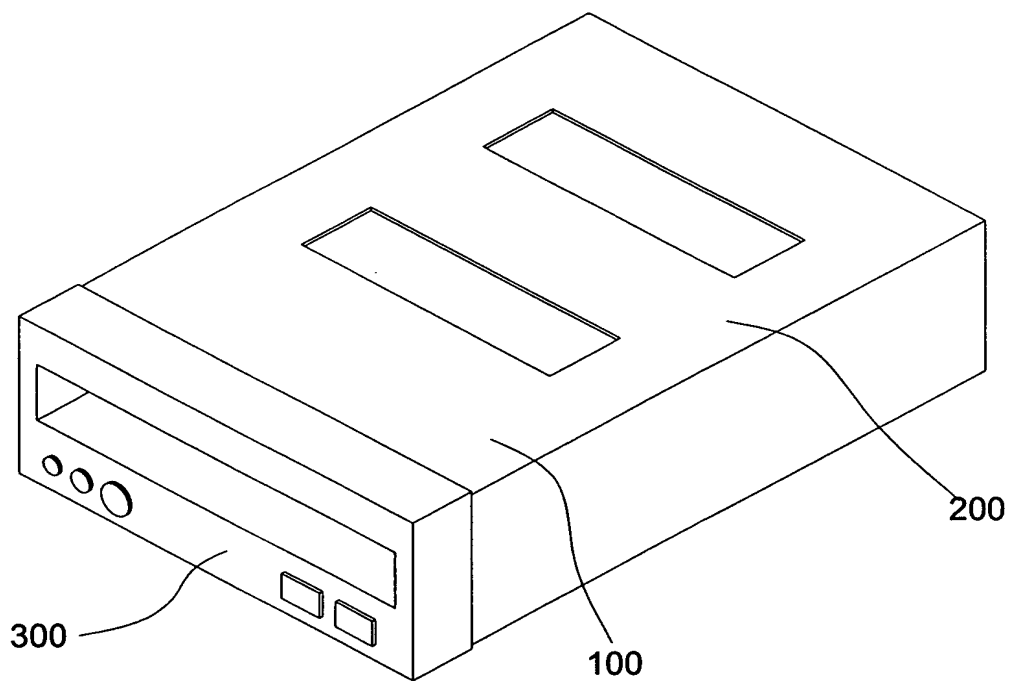


Fig.1

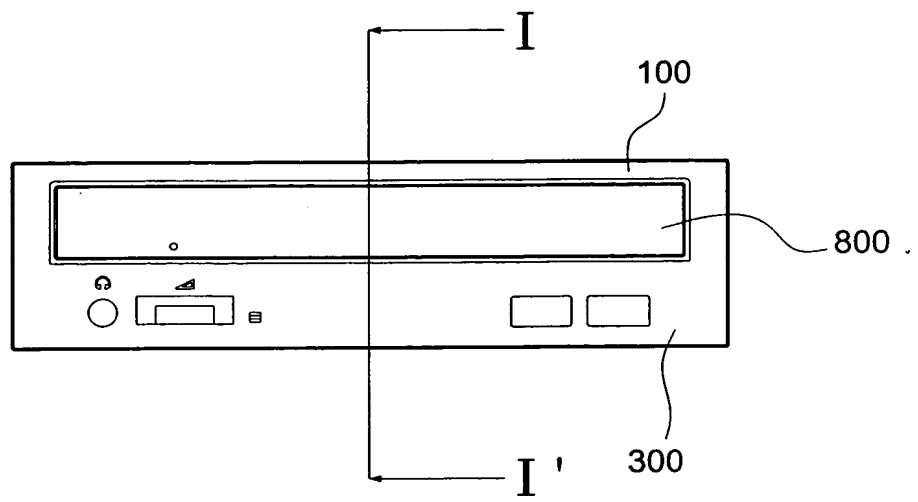


Fig.2a

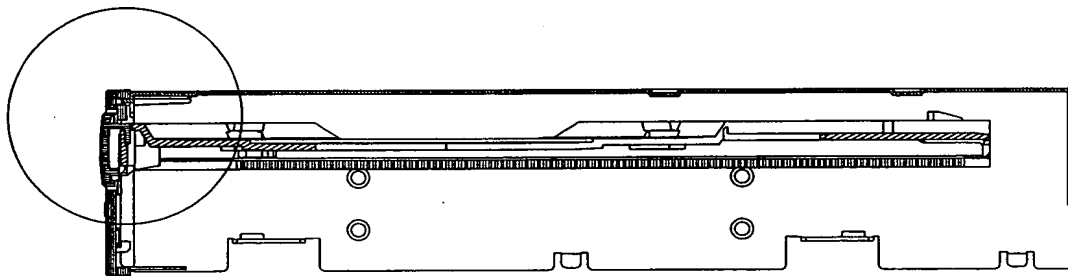


Fig.2b

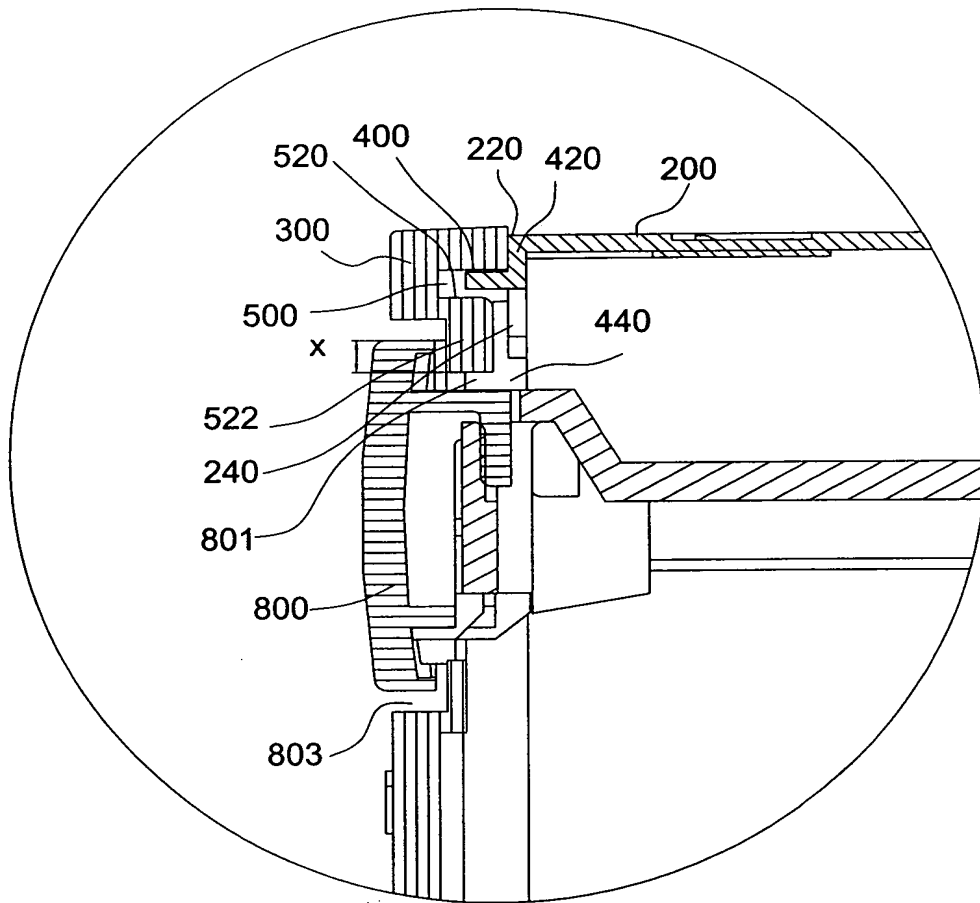


Fig.2c

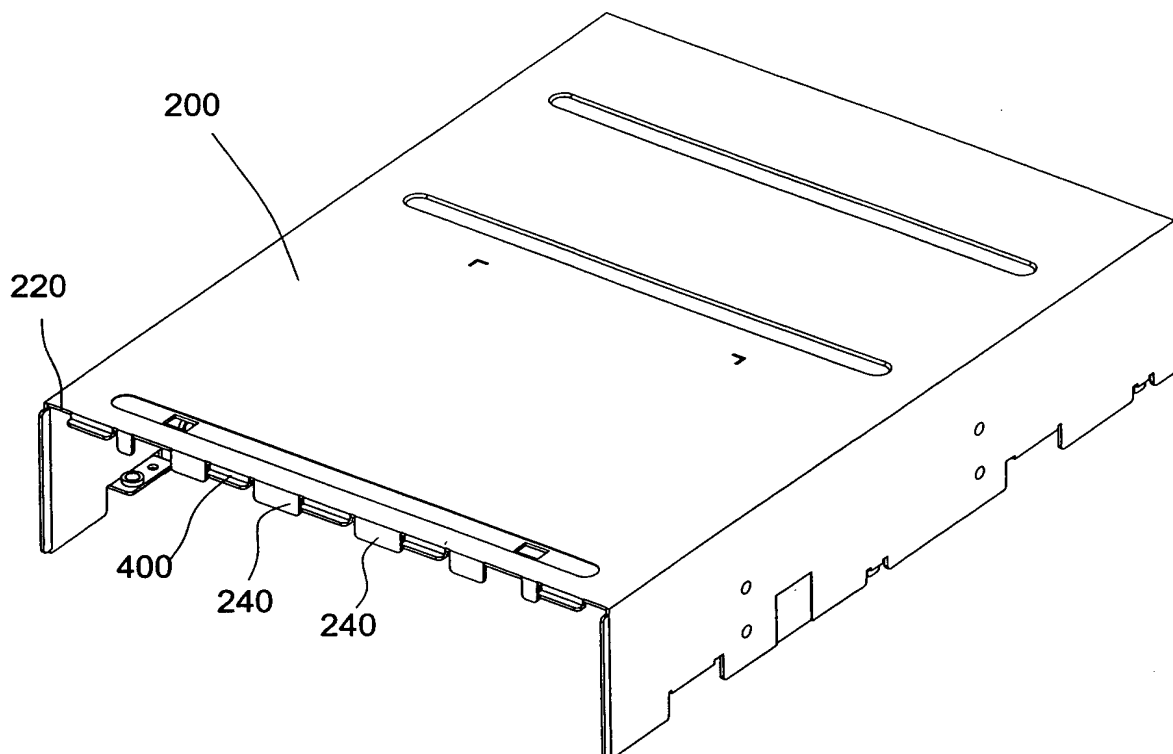


Fig.3

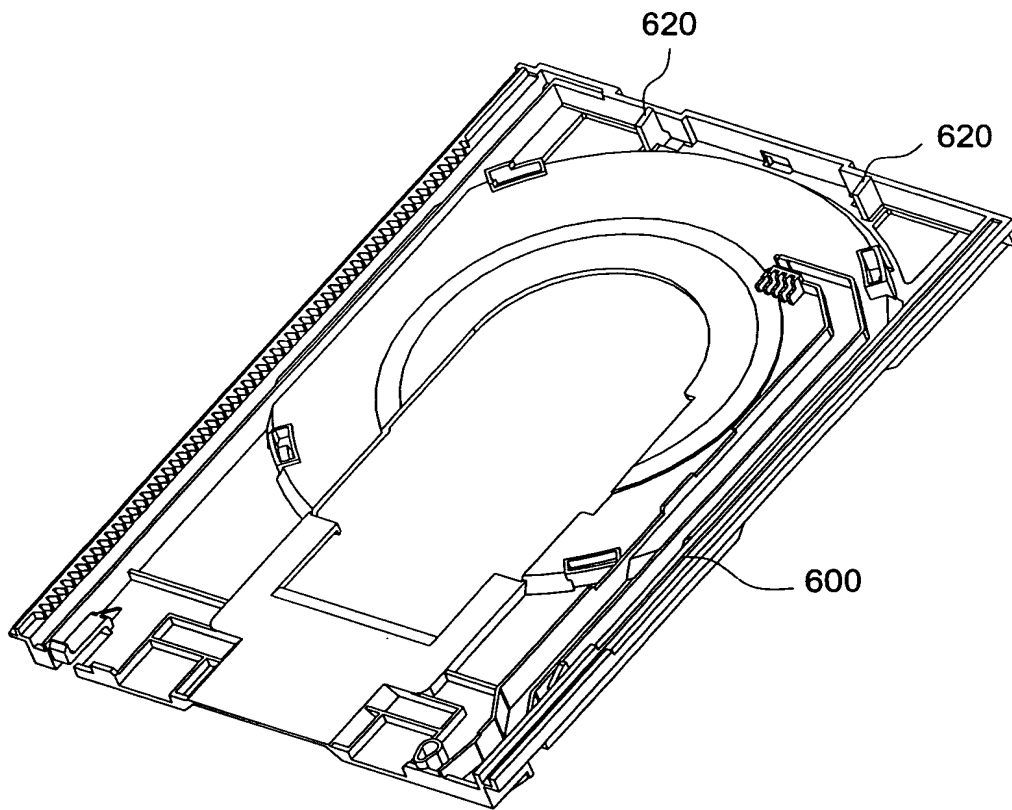


Fig.4a



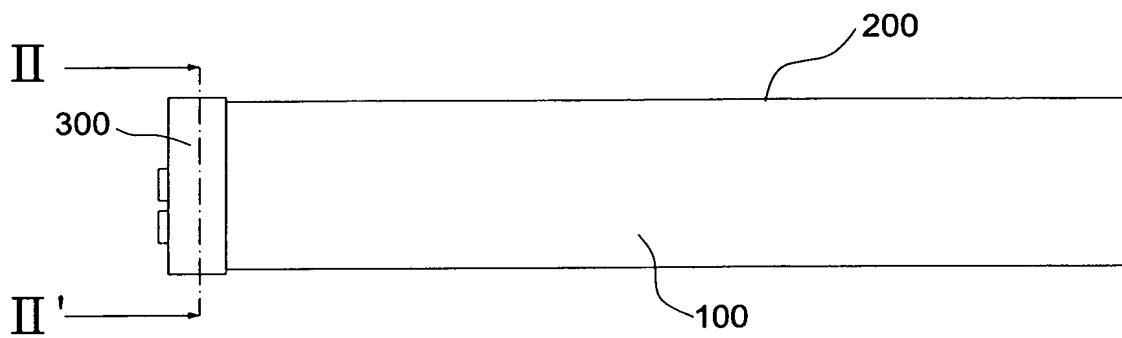


Fig.5a

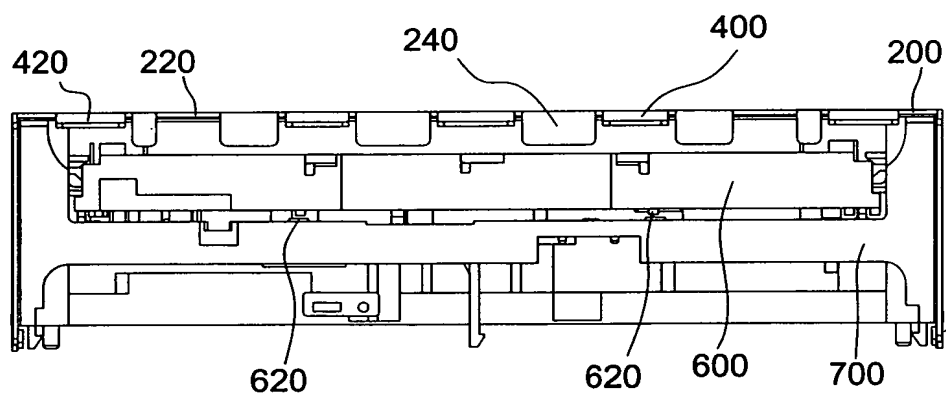


Fig.5b

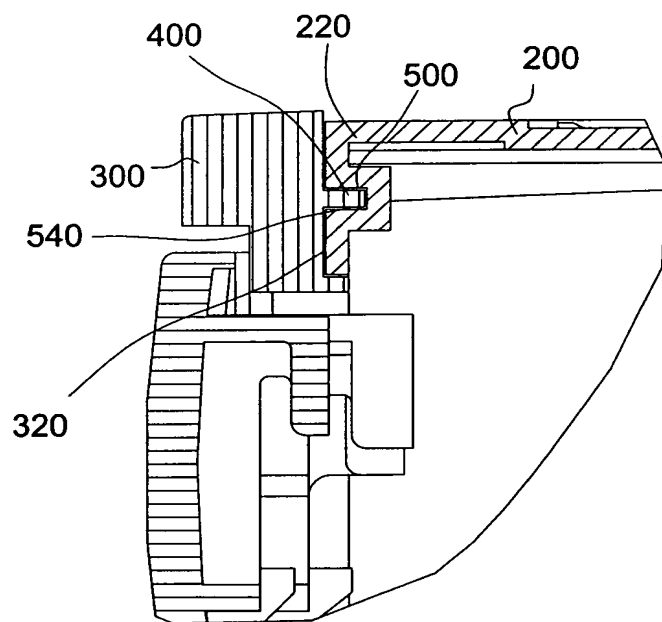


Fig.6

TRANSLATION OF CERTIFIED DOCUMENT

THIS IS TO CERTIFY THAT ANNEXED IS A TRUE COPY FROM THE RECORDS OF THIS OFFICE OF THE APPLICATION AS ORIGINALLY FILED WHICH IS IDENTIFIED HEREUNDER.

APPLICATION DATE: **June 25, 2002**

APPLICATION NUMBER: **091113858**

(TITLE: **Disc Apparatus with Device for Preventing a Cracked Disc from Shooting Out**)

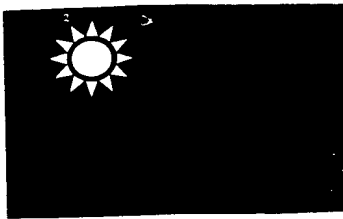
APPLICANT: **BenQ Corporation**

DIRECTOR GENERAL

陳明邦

ISSUE DATE: **August 19, 2002**

SERIAL NUMBER: **09111015874**



中華民國經濟部智慧財產局

INTELLECTUAL PROPERTY OFFICE  
MINISTRY OF ECONOMIC AFFAIRS  
REPUBLIC OF CHINA

茲證明所附文件，係本局存檔中原申請案的副本，正確無訛，  
其申請資料如下：

This is to certify that annexed is a true copy from the records of this  
office of the application as originally filed which is identified hereun

申 請 日：西元 2002 年 06 月 25 日  
Application Date

申 請 案 號：091113858  
Application No.

申 請 人：明基電通股份有限公司  
Applicant(s)

局 長

Director General

陳 明 邦

發文日期：西元 2002 年 8 月  
Issue Date

發文字號：09111015874  
Serial No.

申請日期：91. 6. 25

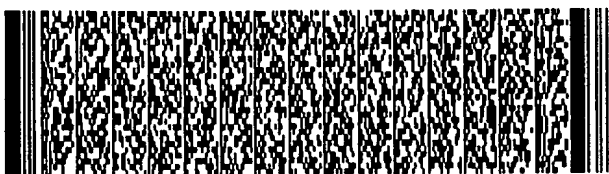
案號：91113858

類別：

(以上各欄由本局填註)

## 發明專利說明書

一、 發明名稱	中文	光碟機防爆片裝置
	英文	Disc Apparatus with Device for Preventing A Cracked Disc Shooting Out
二、 發明人	姓名 (中文)	1. 莊政潔 2. 邱顯聰 3. 黃秋安
	姓名 (英文)	1. 2. CHIU, Hsien-Tsung 3.
	國籍	1. 中華民國 2. 中華民國 3. 中華民國
	住、居所	1. 台北縣三重市民生街61巷18弄15號3樓 2. 桃園縣龜山鄉自強南路696巷9號 3. 雲林縣褒忠鄉龍岩村10鄰18號之1
三、 申請人	姓名 (名稱) (中文)	1. 明基電通股份有限公司
	姓名 (名稱) (英文)	1. BENQ CORPORATION
	國籍	1. 中華民國
	住、居所 (事務所)	1. 桃園縣龜山鄉山鶯路一五七號
	代表人 姓名 (中文)	1. 李焜耀
	代表人 姓名 (英文)	1. K. Y. LEE

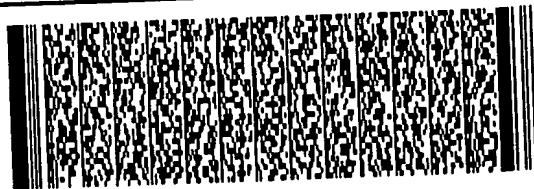
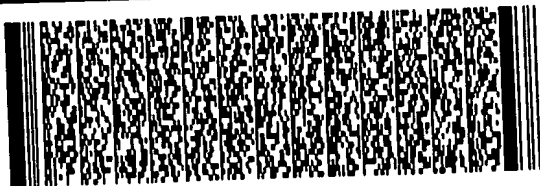


四、中文發明摘要 (發明之名稱：光碟機防爆片裝置)

本發明係關於一種供阻擋裂碟破片射出光碟機之裝置，以及包含此一裝置之碟片資料讀取裝置。本發明之裝置包含上蓋及面板。面板係選擇性地連結上蓋。上蓋具有突出部份，且突出部份係連接上蓋之前緣。面板具有第一面，且第一面係對應於突出部份。當裂碟破片產生時，突出部份與第一面間產生相對作用力以避免面板與上蓋產生相對位移，以阻擋裂碟破片向外射出。

英文發明摘要 (發明之名稱：Disc Apparatus with Device for Preventing A Cracked Disc Shooting Out)

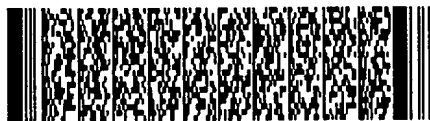
The present invention relates to a device for preventing a cracked disc from shooting out and to a disc player including the device. The device includes a housing and a panel. The panel is selectively coupled to the housing. The housing includes a protrusion connecting to a front edge of the housing. The panel includes a first surface corresponding to the protrusion. When the disc cracks, a reacting force between the protrusion and the first surface prevents the



四、中文發明摘要 (發明之名稱：光碟機防爆片裝置)

英文發明摘要 (發明之名稱：Disc Apparatus with Device for Preventing A Cracked Disc Shooting Out)

cracked disc from shooting out due to the housing moving relative to the panel.



○ ○

本案已向

國(地區)申請專利

申請日期

案號

主張優先權

無

有關微生物已寄存於

寄存日期

寄存號碼

無



## 五、發明說明 (1)

### 發明領域

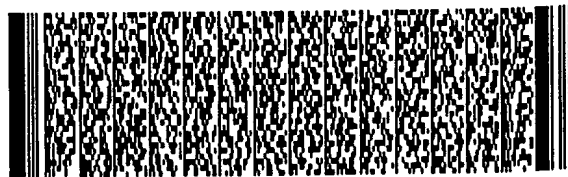
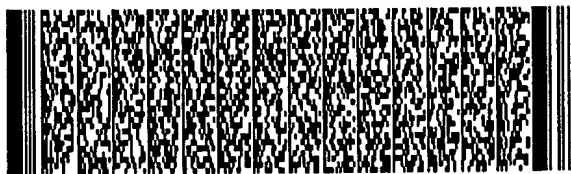
本發明係關於一種供阻擋裂碟破片射出光碟機之裝置，以及包含此一裝置之碟片資料讀取裝置。

### 發明背景

隨著光碟機倍數不斷提高，加上市面上的光碟片品質參差不齊，光碟機運轉時光碟片破裂飛出傷人的事件時有所聞。因此如何防止破裂之光碟片飛出，就成為光碟機機構設計的重點之一。

一般而言，破裂之光碟片通常先通過托盤及上蓋之間的狹縫。再利用強大的衝擊力將面板上的外蓋破壞，以射出傷人。傳統上為防止裂碟破片射出，係將上蓋前緣向下彎折以形成阻擋裝置。利用上蓋之金屬鈹件之強度，阻擋裝置可將向外射出之裂碟破片擋下。

然而，因光碟片破裂時伴隨著巨大的能量。此一能量往往將光碟機之托盤向下擠壓，使裂碟破片經由上蓋的阻擋裝置下方向外射出。為解決此一問題，部份的光碟機係在托盤下方設計支點，且支點非常靠近甚至接觸到光碟機的底盤。當光碟片破裂而將托盤向下擠壓時，支點即藉由底盤的支撐以向上提供反力。如此托盤即可避免向下位移，使裂碟破片不致由阻擋裝置下方經過。



## 五、發明說明 (2)

然而此一設計仍未能完全防止裂碟破片向外射出，為光碟片破裂時產生的能量，亦會將上蓋向上推擠，使擋裝置產生位移。此時裂碟破片即可通過阻擋裝置的下向外射出。

### 發明概述

本發明之主要方面在提供一種裝置，供應用於碟片資料讀取裝置，以阻擋裂碟破片向外射出。

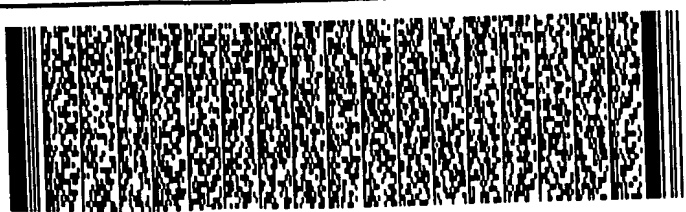
本發明之另一方面在提供一種裝置，供應用於碟片資料讀取裝置，以減少因裂碟破片而造成之上蓋位移。

本發明之另一方面在提供一種裝置，供應用於碟片資料讀取裝置，以減少因裂碟破片而造成之托盤位移。

本發明之再一方面在提供一種碟片資料讀取裝置，包含上述之裝置。

本發明係提供一種裝置，供應用於碟片資料讀取裝置。以阻擋裂碟破片向外射出。在第一實施例中，本發明之裝置包含上蓋及面板。面板係選擇性地連結上蓋。上蓋具有突出部份，且突出部份係連接上蓋之前緣。面板具有第一面，且第一面係對應於突出部份。當裂碟破片產生時，突出部份與第一面間產生相對作用力以避免面板與上蓋產生相對位移，以阻擋裂碟破片向外射出。

此外，上蓋進一步包含阻擋裝置，供阻擋裂碟破片。



### 五、發明說明 (3)

阻擋裝置係連接於前緣，且自前緣向下延伸。

又，本發明進一步包含托盤及底盤。托盤具有至少支點。當裂碟破片產生時，支點與底盤接觸並產生相對用力以避免托盤與底盤產生相對位移，以阻擋裂碟破片外射出。

在第二實施例中，其與第一實施例之主要不同處在於，面板之內側連接突出部份，而上蓋具有與突出部份對應之第二面。

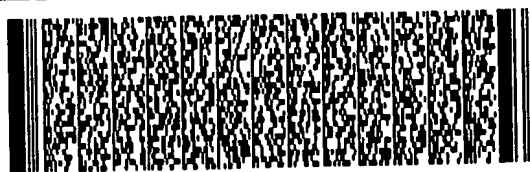
本發明同時提供一種碟片資料讀取裝置，包含上述防止裂碟破片射出之裝置。

#### 發明之詳細說明

本發明係提供一種裝置，供應用於碟片資料讀取裝置100，如圖1所示。當碟片資料讀取裝置100所使用之碟片破裂時，本發明之裝置供阻擋裂碟破片向外射出。此處所言之碟片資料讀取裝置可以為CD光碟機、CD-R光碟機、DVD光碟機及其他可提供類似功能者。根據本發明之數個較佳具體實施例揭露如下。

#### 第一實施例

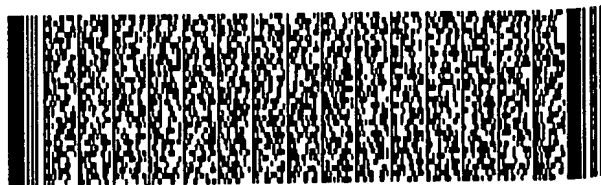
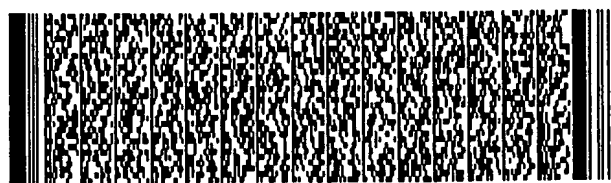
請參閱圖2a、圖2b及圖2c。本發明之裝置包含上蓋



#### 五、發明說明 (4)

200 及面板 300。上蓋 200 具有突出部份 400，且突出部份 400 係連接上蓋 200 之前緣 220。此處所言之突出部份 400 可為一板狀突出、球狀突出、半球狀突出、及其他可提類似功能者。在如圖 2c 所示之實施例中，突出部份 400 自前緣 220 向下延伸第一長度 420，再轉為朝向面板 300 方向延伸。亦即突出部份 400 具有 L 形之剖面形狀。然而在另一實施例中，突出部份 400 亦可直接由前緣 200 朝面板 300 延伸。此處所言之延伸，係為沿水平方向延伸，然而亦可沿與水平方向夾一角度之方向延伸。

面板 300 係選擇性地連結上蓋 200 之前緣 220，在此一實施例中，面板 300 係可拆地與該上蓋 200 之前緣 220 連結。面板 300 具有第一面 520，且第一面 520 係對應於突出部份 400。以此一實施例而言，當上蓋 200 與面板 300 連結時，第一面 520 係對應並接觸突出部份 400 之側面。當碟片在碟片讀取裝置 100 內破裂時，其伴隨而生之能量迫使上蓋 200 及托盤 600 分別向上下移動或變形，大部分的破碟裂片受到阻擋裝置 240 的阻擋而留在碟片資料讀取裝置 100，僅有小部份較小的破碟裂片或經阻擋裝置 240 衰減能量後的大型破碟裂片由阻擋裝置 240 與托盤之間所形成的間隙 440 向面板 300 方向飛出。由於面板 300 及蓋子 800 均為塑膠材質，其剛性不足以抵擋飛出之破碟裂片所形成之能量，因此飛出的破碟裂片由面板 300 及蓋子 800 的接合處將面板 300 及蓋子 800 分別向上下撐開，並撞擊蓋子 800。當面板

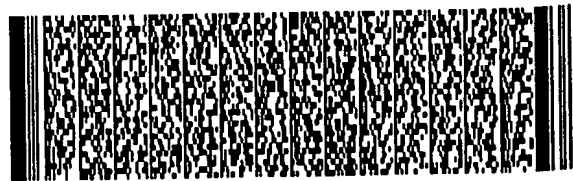
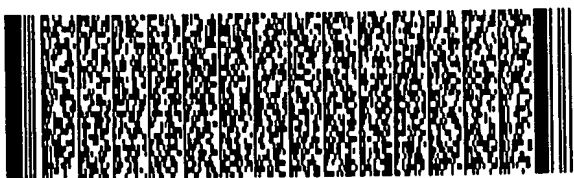


##### 五、發明說明 (5)

300 受破碟裂片之能量作用向上移動時，第一面520隨著板300的移動而向上抵接突出部份400並產生相對作用力。此相對作用力可幫助面板300與上蓋200之相對位置保持定，避免產生相對位移；另外，第一面520的延伸部522與蓋子800具有一預定重疊距離X，蓋子800下端與面板300之間具有一間隙803，當蓋子800受破碟裂片之能量作用下移動變形時，由於間隙803小於重疊距離X，因此當蓋子800下端抵接面板300時，延伸部522與蓋子800仍相互重疊，以阻擋裂碟破片向外射出。

如圖2c所示，面板300進一步包含凹槽500。就此一實施例而言，此一凹槽500係為狹長槽道，且平行於碟片放置之方向。第一面520係為凹槽500之側壁。當上蓋200與面板300連結時，突出部份400係容納於凹槽500，且凹槽500之側壁，亦即第一面520，係對應突出部份400之側面。

圖3為本發明第一實施例上蓋200之示意圖。如圖3所示，阻擋裝置240係連接於上蓋200之前緣220，且自前緣220向下延伸。此處所言之阻擋裝置240可為板狀結構、網狀結構、或其他具有類似功能之結構。就此一實施例而言，阻擋裝置240係為板狀結構，且與突出部份400交錯設置，如圖3所示。

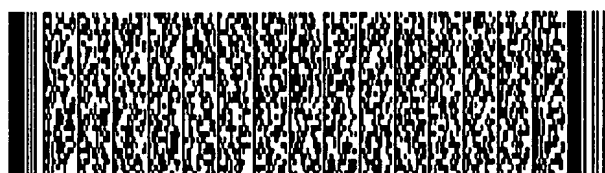


## 五、發明說明 (6)

本發明進一步包含托盤600及底盤700，托盤600係承托碟片，而底盤700係供支承托盤600。圖4a為本發明盤600底面之示意圖。如圖4a所示，托盤600具有至少一點620。此處所言之支點620泛指可藉由接觸而產生作用加以支撐之結構，係可為球狀、半球狀、條狀、十字狀及其他可提供類似功能者。當碟片在碟片讀取裝置100內破裂時，其伴隨而生之能量迫使托盤600向下移動，此時支點620與底盤700接觸並產生相對作用力，如圖5b所示此相對作用力可限制托盤600與底盤700之相對位置保持固定，避免產生相對位移，以阻擋裂碟破片向外射出。然而在另一實施例中，如圖4b所示，支點620亦可位於底盤700上，而與托盤600接觸並產生相對作用力。亦可為托盤600及底盤700均具有支點620，且托盤600之支點620與底盤700之支點接觸以產生相對作用力。

### 第二實施例

請參閱圖6。第二實施例與第一實施例之主要不同處在於，面板300具有突出部份400，而上蓋200具有與突出部份400對應之第二面540。突出部份400係連接面板300之內側320。此處所言之突出部份400係可為一板狀突出、球狀突出、半球狀突出、及其他可提供類似功能者。在如圖6所示之實施例中，突出部份400係自內側320朝上蓋200方向延伸。此處所言之延伸，係為沿水平方向延伸，然而亦可為沿與水平方向夾一角度之方向延伸。



## 五、發明說明 (7)

上蓋200係選擇性地連結面板300之內側320，在此實施例中，上蓋200係可拆地與該面板300之內側320連結。上蓋200具有第二面540，且第二面540係對應於突出部份400。以此一實施例而言，當上蓋200與面板300連結時，第二面540係對應並接觸突出部份400之側面。當碟片在碟片讀取裝置100內破裂時，其伴隨而生之能量迫使上蓋200向上移動或變形，此時突出部份400與第二面540間產生相對作用力。此相對作用力可幫助面板300與上蓋200之相對位置保持固定，避免產生相對位移，以阻擋裂碟片向外射出。

如圖6所示，上蓋200進一步包含凹槽500。就此一實施例而言，此一凹槽500係為狹長槽道，且平行於碟片放置之方向。第二面540係為凹槽500之側壁。當上蓋200與面板300連結時，突出部份400係容納於凹槽500，且凹槽500之側壁，亦即第二面540，係對應並接觸突出部份400之側面。

藉由以上較佳具體實施例之詳述，係希望能更加清楚描述本發明之特徵與精神，而上述所揭露的較佳具體實施例並非對本發明之範疇的限制。相反地，上述的說明以及各種改變及均等性的安排皆為本發明所欲受到保護的範疇。例如，具有本發明裝置之碟片讀取裝置100亦在本發



五、發明說明 (8)

明所意圖保護之範圍。因此，本發明所申請之專利範圍  
範疇應該根據上述的說明作最寬廣的解釋，並涵蓋所有  
能均等的改變以及具均等性的安排。



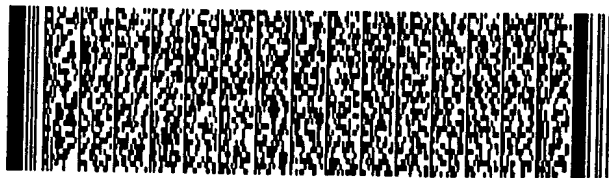


# 圖式簡單說明

- 圖1 為本發明之示意圖；  
圖2a 為本發明第一實施例正視圖；  
圖2b 為圖2a 實施例之I-I' 剖面圖；  
圖2c 為圖2b 之局部放大圖；  
圖3 為本發明第一實施例上蓋之示意圖；  
圖4a 為本發明托盤之底部示意圖；  
圖4b 為本發明底盤之示意圖；  
圖5a 為本發明第一實施例之側視圖；  
圖5b 為圖5a 實施例之II-II' 剖面圖；  
圖6 為本發明第二實施例之局部放大圖；

## 圖式元件符號說明

100	碟片資料讀取裝置		
200	上蓋	220	前緣
240	阻擋裝置		
300	面板	320	內側
400	突出部份	420	第一長度
440	間隙		
500	凹槽	520	第一面
540	第二面	522	延伸部
600	托盤	620	支點
700	底盤	800	蓋子
801	接合處	803	間隙



六、申請專利範圍

1. 一種裝置，係應用於一碟片資料讀取裝置，該裝置包含：

一上蓋(housing)，該上蓋具有一突出部份(protrusion)，該突出部份係連接該上蓋之一前緣(front edge)；以及

一面板(panel)，該面板係選擇性地連結該上蓋之該前緣，該面板具有一第一面，該第一面係對應於該突出部份；

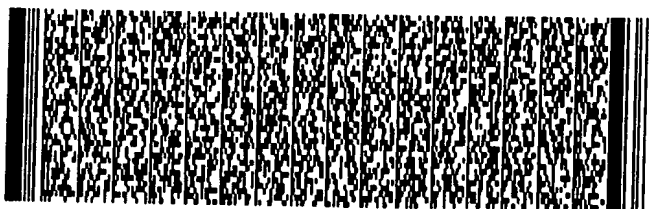
其中，該突出部份及該第一面間之一相對作用力限制該面板與該上蓋產生相對位移，以阻擋一裂碟破片向外移動。

2. 如申請專利範圍第1項所述之裝置，其中該面板進一步包含一凹槽(depression)，該第一面係為該凹槽之一側壁，當該上蓋與該面板連結時，該突出部份係容納(received)於該凹槽。

3. 如申請專利範圍第2項所述之裝置，其中該凹槽係為一狹長槽道(slot)。

4. 如申請專利範圍第1項所述之裝置，其中該突出部份係自該前緣延伸而出。

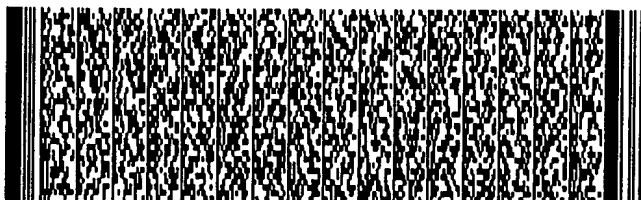
5. 如申請專利範圍第4項所述之裝置，其中該突出部份係



#### 六、申請專利範圍

自該前緣向下延伸至一第一長度，再轉為向該面板方向伸。

6. 如申請專利範圍第1項所述之裝置，其中該上蓋進一步包含一阻擋裝置(stopper)，該阻擋裝置係連接於該前緣，且自該前緣向下延伸，供阻擋該裂碟破片。
7. 如申請專利範圍第1項所述之裝置，其中該裝置進一步包含一托盤(tray)及一底盤(chassis)，該托盤具有至少一支點(support point)，當該碟片破裂時，該支點及該底盤接觸並產生一支撐力限制該托盤與該底盤產生相對位移，以阻擋該裂碟破片向外移動。
8. 如申請專利範圍第1項所述之裝置，其中該裝置進一步包含一托盤(tray)及一底盤(chassis)，該底盤具有至少一支點(support point)，當該碟片破裂時，該支點及該托盤接觸並產生一支撐力限制該托盤與該底盤產生相對位移，以阻擋該裂碟破片向外移動。
9. 一種裝置，係應用於一碟片資料讀取裝置，該裝置包含：  
一面板(panel)，該面板具有一突出部份，該突出部份係連接該面板之一內側；以及  
一上蓋(housing)，該上蓋係選擇性地連結該面板之



六、申請專利範圍

該內側，該上蓋具有一第二面，該第二面係對應於該突部份；

其中，該突出部份及該第二面間之一相對作用力限該面板與該上蓋產生相對位移，以阻擋該一裂碟破片向移動。

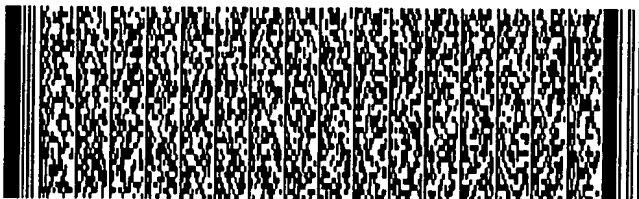
10. 如申請專利範圍第9項所述之裝置，其中該上蓋進一步包含一凹槽(depression)，該第二面係為該凹槽之一側壁，當該上蓋與該面板連結時，該突出部份係容納(received)於該凹槽。

11. 如申請專利範圍第10項所述之裝置，其中該凹槽係為一狹長槽道(slot)。

12. 如申請專利範圍第9項所述之裝置，其中該突出部份水平朝該上蓋方向延伸。

13. 如申請專利範圍第9項所述之裝置，其中該上蓋進一步包含一阻擋裝置(stopper)，該阻擋裝置係連接於該上蓋之一前緣，且自該前緣向下延伸，供阻擋該裂碟破片。

14. 如申請專利範圍第9項所述之裝置，其中該裝置進一步包含一托盤(tray)及一底盤(chassis)，該托盤具有至少一支點(support point)，當該碟片破裂時，該支點及該



六、申請專利範圍

底盤接觸並產生一支撐力限制該托盤移動，以阻擋該裂破片向外移動。

15. 如申請專利範圍第9項所述之裝置，其中該裝置進一步包含一托盤(tray)及一底盤(chassis)，該底盤具有至少一支點(support point)，當該碟片破裂時，該支點及該托盤接觸並產生一支撐力限制該托盤移動，以阻擋該裂破片向外移動。

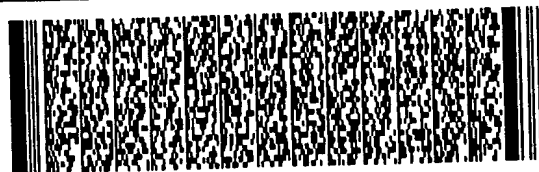
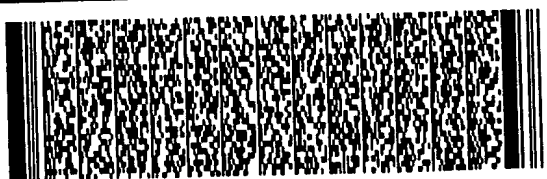
16. 一種使用一碟片之碟片資料讀取裝置，該碟片資料讀取裝置包含：

一殼體，該殼體具有一開口，該開口之前緣處具有一突出部份；以及

一面板(panel)，該面板係選擇性地連結於(assemble)該殼體之該前緣，該面板具有一對應於該突出部份之第一面；

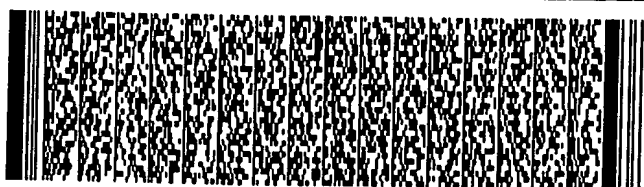
其中，該突出部份及該第一面間之一相對作用力限制該面板與該前緣產生相對位移，以阻擋一裂碟破片向外移動。

17. 如申請專利範圍第16項所述之碟片資料讀取裝置，其中該面板進一步包含一凹槽(depression)，該第一面係為該凹槽之一側壁，當該前緣與該面板連結時，該突出部份係容納(received)於該凹槽。



六、申請專利範圍

18. 如申請專利範圍第17項所述之碟片資料讀取裝置，其中該凹槽係為一狹長槽道(slot)。
19. 如申請專利範圍第16項所述之碟片資料讀取裝置，其中該突出部份係自該前緣延伸而出。
20. 如申請專利範圍第19項所述之碟片資料讀取裝置，其中該突出部份係自該前緣向下延伸至一第一長度，再轉為向該面板方向延伸。
21. 如申請專利範圍第16項所述之碟片資料讀取裝置，其中該殼體進一步包含一阻擋裝置(stopper)，該阻擋裝置係連接於該前緣，且自該前緣向下延伸，供阻擋該裂碟破片。
22. 如申請專利範圍第16項所述之碟片資料讀取裝置，其中該碟片資料讀取裝置進一步包含一托盤(tray)及一底盤(chassis)，該托盤具有至少一支點(support point)，當該碟片破裂時，該支點及該底盤接觸並產生一支撐力限制該托盤與該底盤產生相對位移，以阻擋該裂碟破片向外移動。
23. 如申請專利範圍第16項所述之碟片資料讀取裝置，其



#### 六、申請專利範圍

中該碟片資料讀取裝置進一步包含一托盤(tray)及一底(chassis)，該底盤具有至少一支點(support point)，該碟片破裂時，該支點及該托盤接觸並產生一支撐力限制該托盤與該底盤產生相對位移，以阻擋該裂碟破片向外移動。

24. 一種使用一碟片之碟片資料讀取裝置，該碟片資料讀取裝置包含：

一面板(panel)，該面板具有一內側，該內側設置有一突出部份；以及

一殼體，該殼體具有一開口，該開口之前緣係選擇性地連結該面板之該內側，該前緣對應於該突出部份處設置有一第二面；

其中，該突出部份及該第二面間之一相對作用力限制該面板與該上蓋產生相對位移，以阻擋一裂碟破片向外移動。

25. 如申請專利範圍24項所述之碟片資料讀取裝置，其中該上蓋進一步包含一凹槽(depression)，該第二面係為該凹槽之一側壁，當該上蓋與該面板連結時，該突出部份係容納(received)於該凹槽。

26. 如申請專利範圍第25項所述之碟片資料讀取裝置，其中該凹槽係為一狹長槽道(slot)。



## 六、申請專利範圍

27. 如申請專利範圍第24項所述之碟片資料讀取裝置，其中該突出部份係水平朝該殼體方向延伸。

28. 如申請專利範圍第24項所述之碟片資料讀取裝置，其中該殼體進一步包含一阻擋裝置(stopper)，該阻擋裝置係連接於該前緣，且自該前緣向下延伸，供阻擋該裂碟破片。

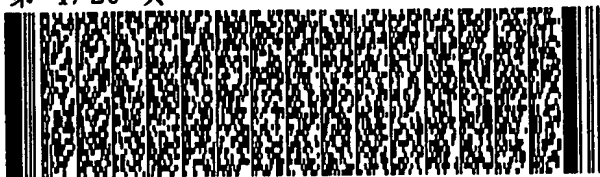
29. 如申請專利範圍第24項所述之碟片資料讀取裝置，其中該碟片資料讀取裝置進一步包含一托盤(tray)及一底盤(chassis)，該托盤具有至少一支點(support point)，當該碟片破裂時，該支點及該底盤接觸並產生一支撐力限制該托盤移動，以阻擋該裂碟破片向外移動。

30. 如申請專利範圍第24項所述之碟片資料讀取裝置，其中該碟片資料讀取裝置進一步包含一托盤(tray)及一底盤(chassis)，該底盤具有至少一支點(support point)，當該碟片破裂時，該支點及該托盤接觸並產生一支撐力限制該托盤移動，以阻擋該裂碟破片向外移動。

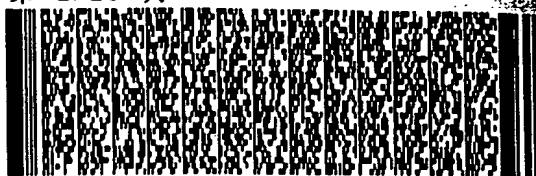




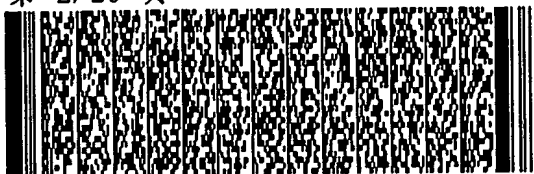
第 1/20 頁



第 2/20 頁



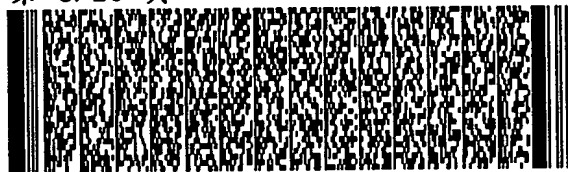
第 2/20 頁



第 3/20 頁



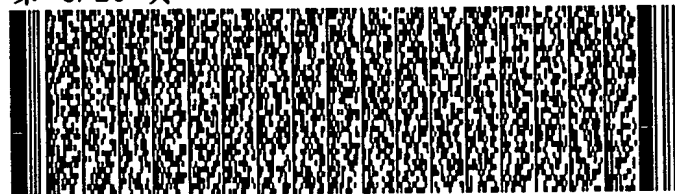
第 5/20 頁



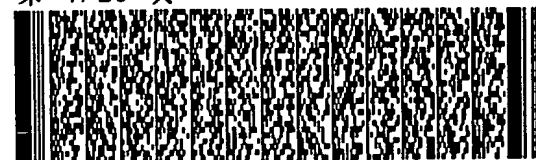
第 5/20 頁



第 6/20 頁



第 7/20 頁



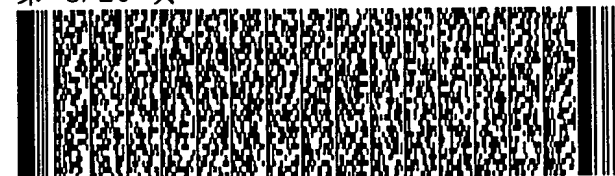
第 7/20 頁



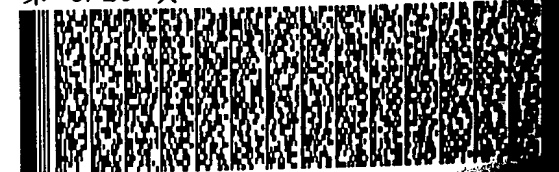
第 8/20 頁



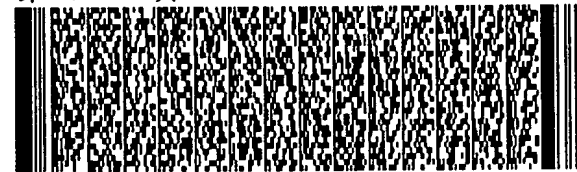
第 8/20 頁



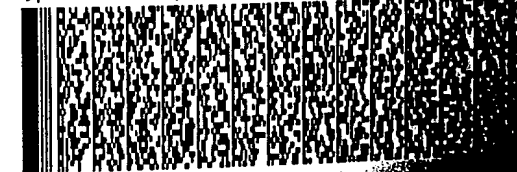
第 9/20 頁



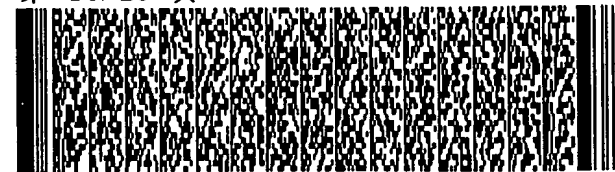
第 9/20 頁



第 10/20 頁



第 10/20 頁



第 11/20 頁



第 11/20 頁



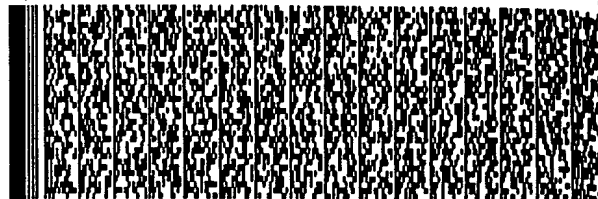
第 12/20 頁



第 13/20 頁



第 14/20 頁



第 15/20 頁



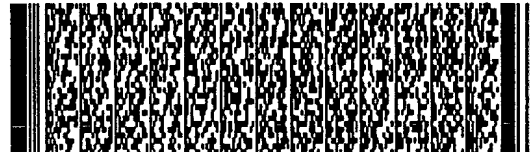
第 16/20 頁



第 17/20 頁



第 17/20 頁



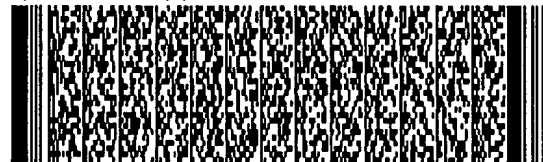
第 18/20 頁



第 19/20 頁



第 19/20 頁



第 20/20 頁



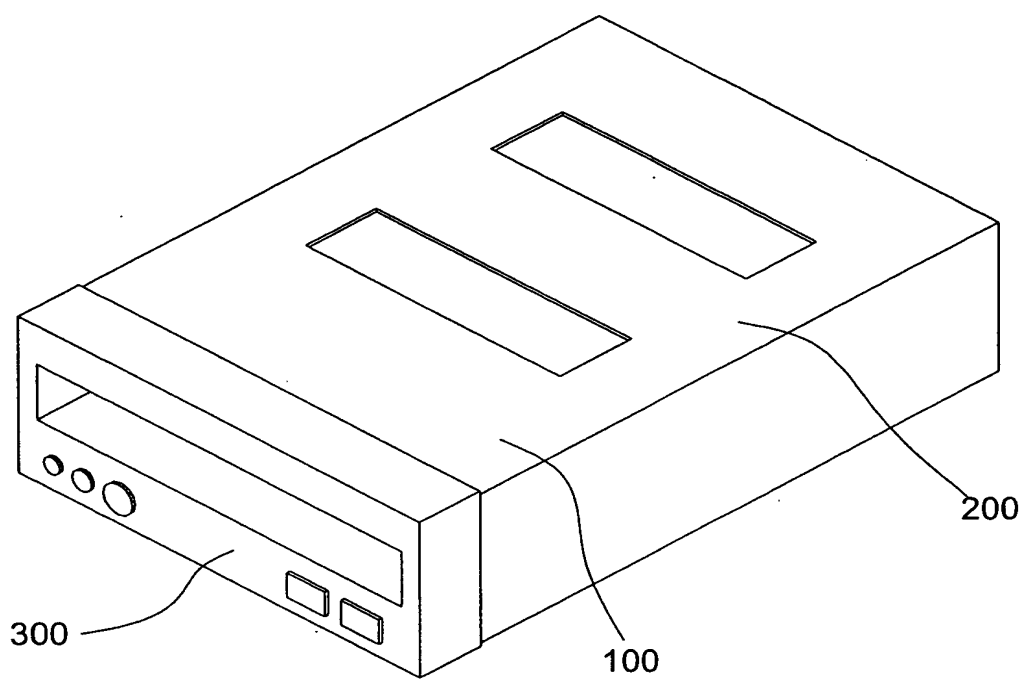


圖 1

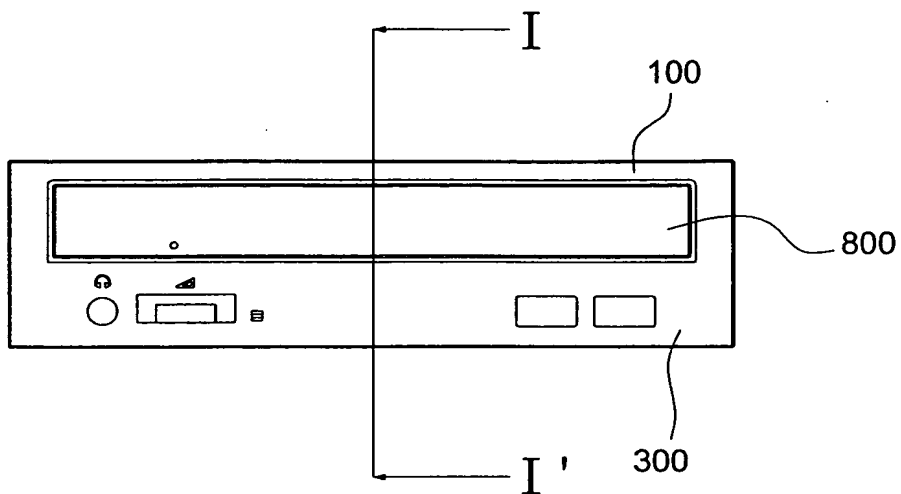


圖 2a

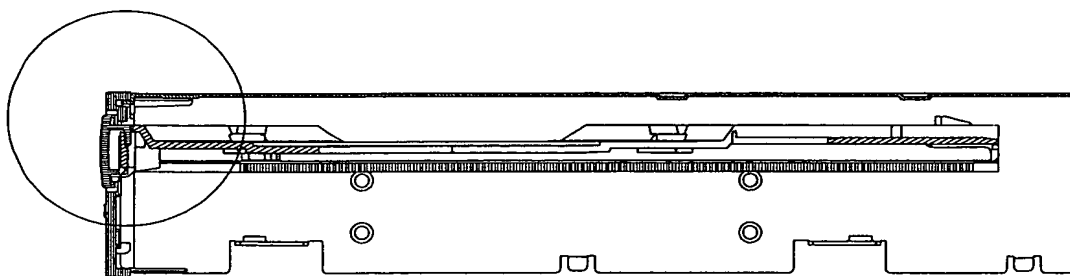


圖 2b

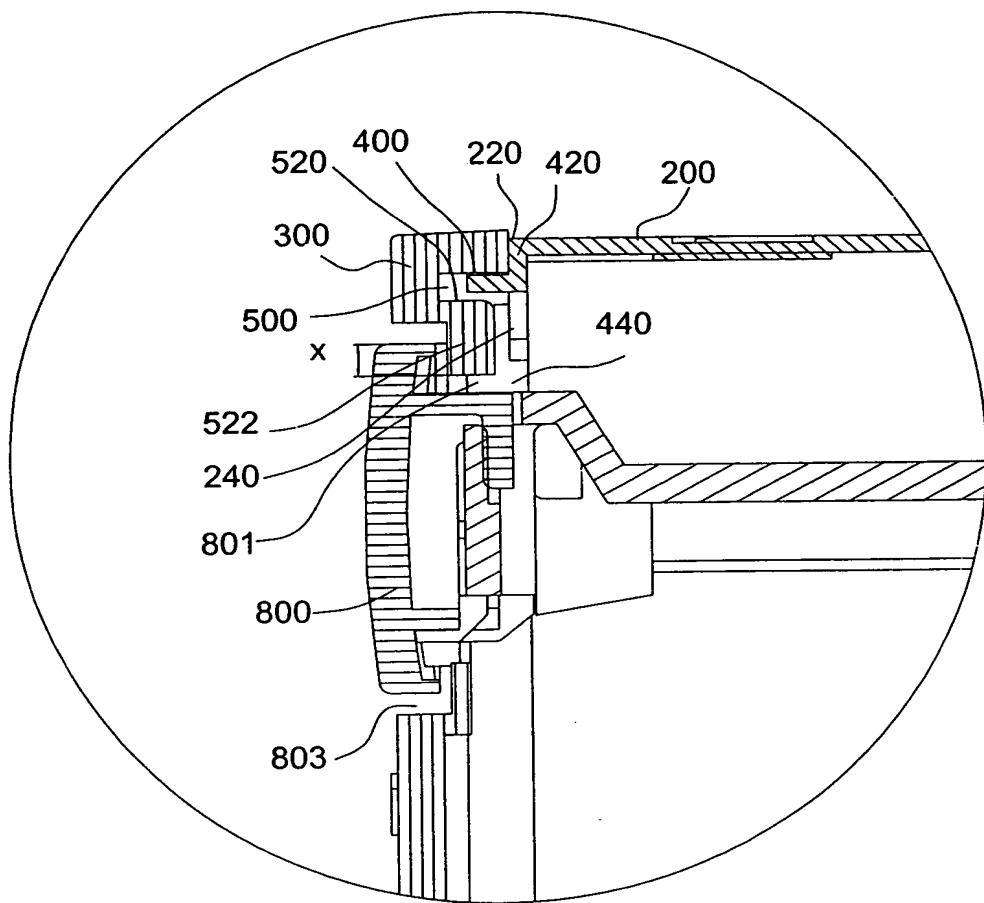


圖 2c

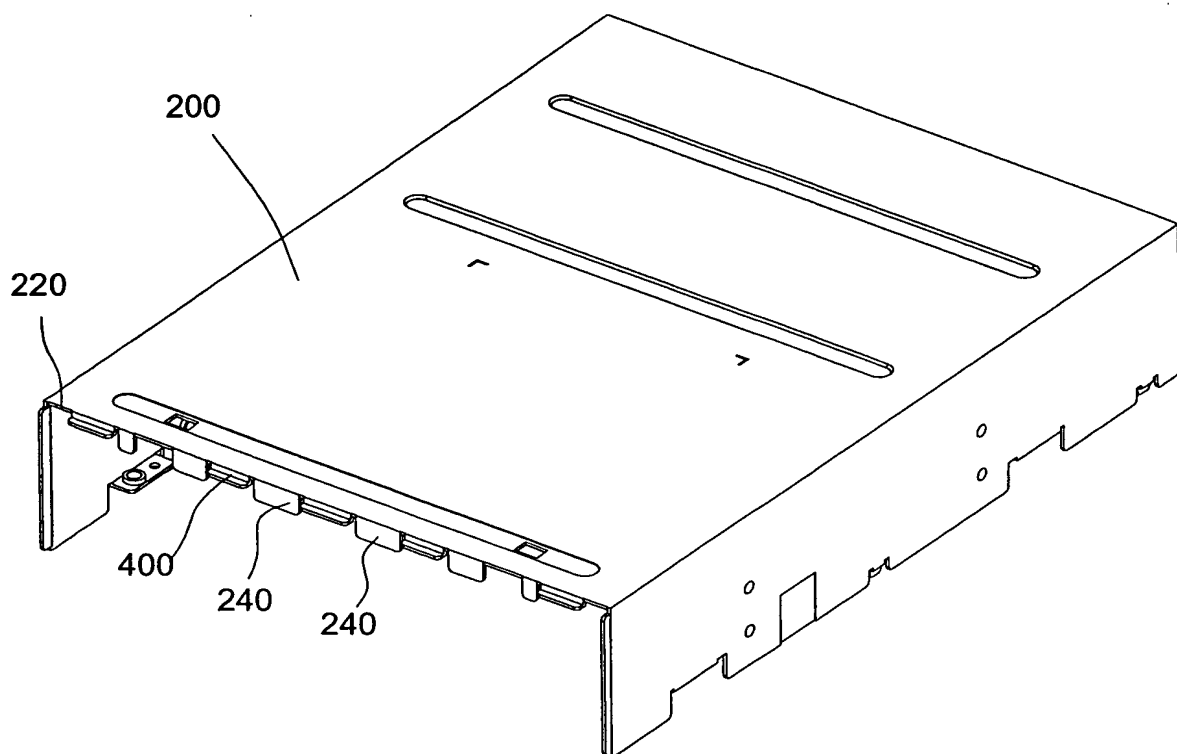


圖 3

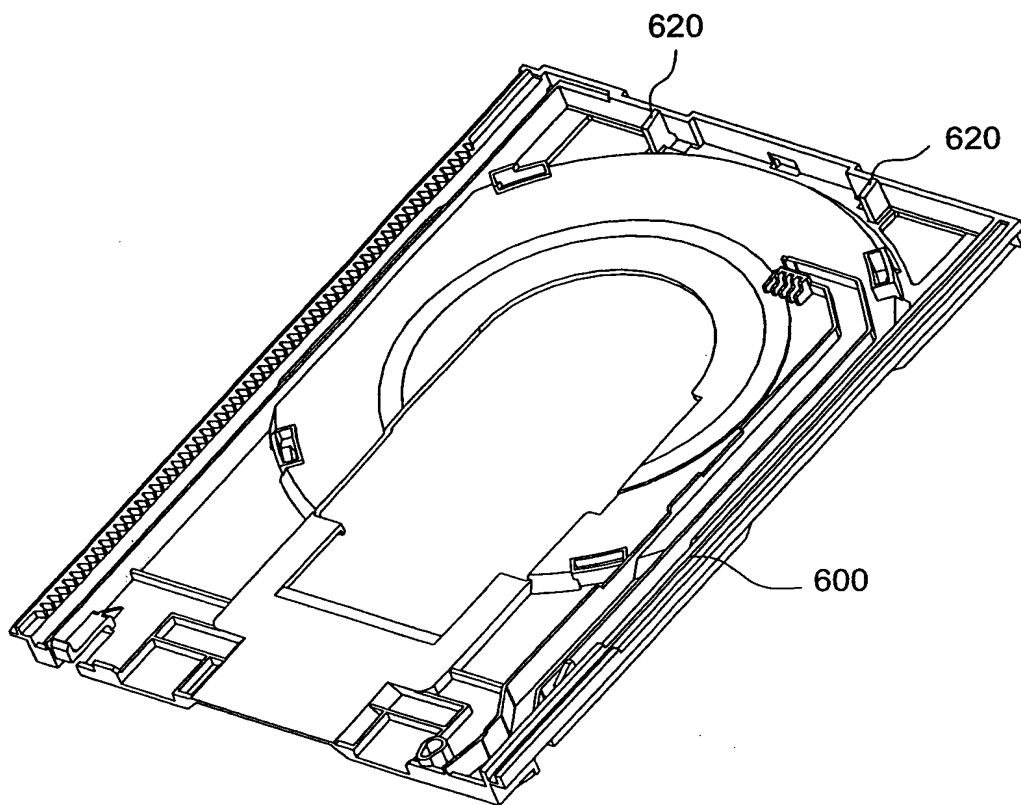


圖 4a

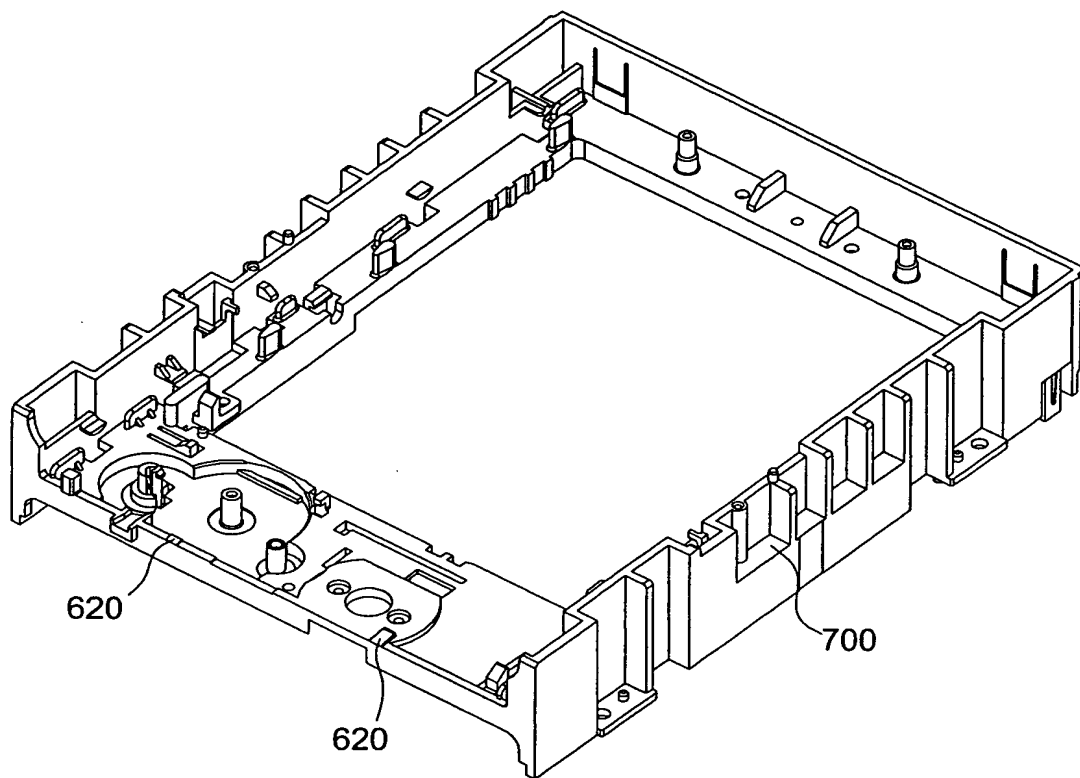


圖 4b



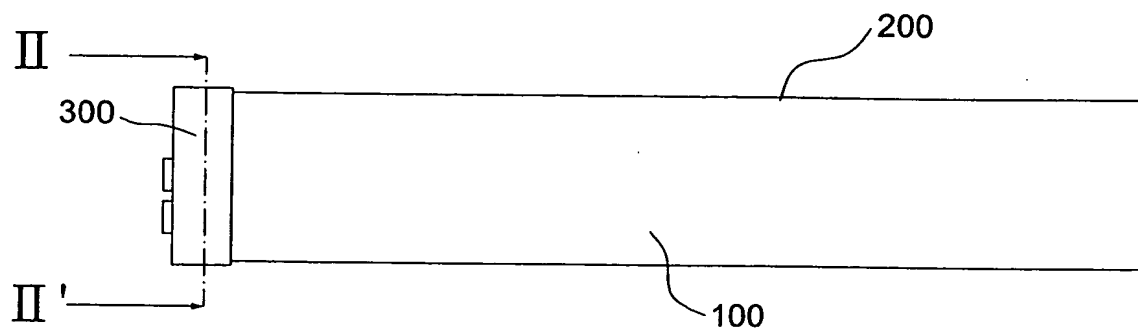


圖 5a

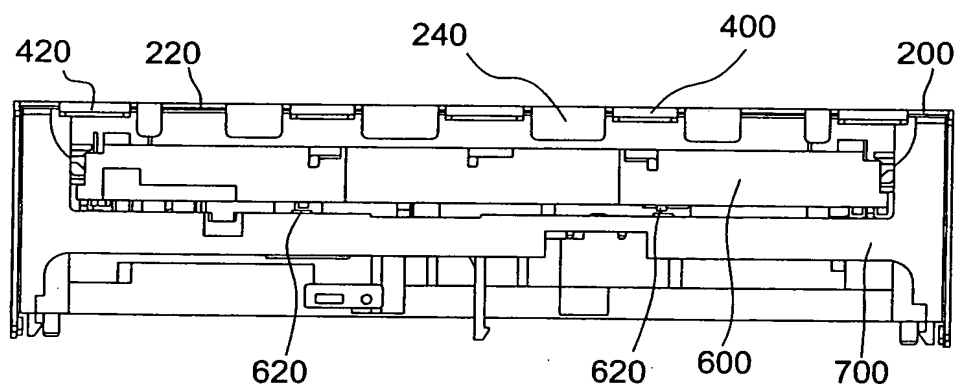


圖 5b

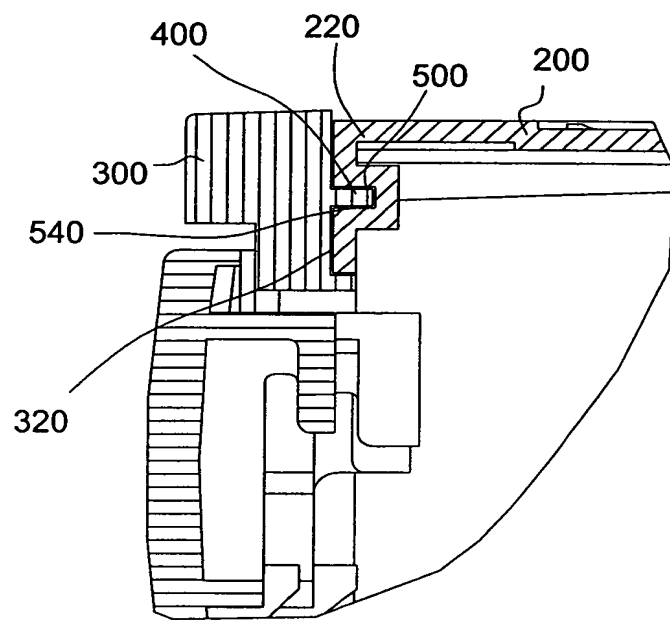


圖 6

**This Page is Inserted by IFW Indexing and Scanning  
Operations and is not part of the Official Record**

**BEST AVAILABLE IMAGES**

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images include but are not limited to the items checked:

- ☒ **BLACK BORDERS**
- ☐ **IMAGE CUT OFF AT TOP, BOTTOM OR SIDES**
- ☐ **FADED TEXT OR DRAWING**
- ☐ **BLURRED OR ILLEGIBLE TEXT OR DRAWING**
- ☐ **SKEWED/SLANTED IMAGES**
- ☐ **COLOR OR BLACK AND WHITE PHOTOGRAPHS**
- ☐ **GRAY SCALE DOCUMENTS**
- ☒ **LINES OR MARKS ON ORIGINAL DOCUMENT**
- ☐ **REFERENCE(S) OR EXHIBIT(S) SUBMITTED ARE POOR QUALITY**
- ☐ **OTHER: \_\_\_\_\_**

**IMAGES ARE BEST AVAILABLE COPY.**

**As rescanning these documents will not correct the image problems checked, please do not report these problems to the IFW Image Problem Mailbox.**